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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1997

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BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

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NOTE: Under Committee Rules, Mr. Livingston, as Chairman of the Full Committee, and Mr. Obey, as Ranking Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

JAMES D. OGSBURY, BOB SCHMIDT, JEANNE WILSON, and DONALD M. MCKINNON, *Staff Assistants*

PART 4

Department of Energy Fiscal Year 1997 Budget Justifications

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Uranium Enrichment Decontamination Fund	2724
Federal Energy Regulatory Commission	2753

Printed for the use of the Committee on Appropriations

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1997

HEARINGS

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DOE/CR-0034
Volume 1 of 5

FY 1997
Congressional Budget Request

Atomic Energy Defense Activities

Weapons Activities

Other Defense Activities

Defense Nuclear Waste Disposal

Defense Environmental Restoration and Waste Management

Office of Chief Financial Officer

Department of Energy

March 1996

Volume 1

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ATOMIC ENERGY DEFENSE ACTIVITIES

VOLUME 1

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy and Water Development Activities					
Energy supply research & development	3,412,738	2,869,382	3,020,497	151,115	5.3%
Uranium supply & enrichment activities	73,123	29,294	27,800	-1,494	-5.1%
Uranium enrichment D&D fund	301,327	278,807	240,200	-38,607	-13.8%
General science & research activities	970,329	982,150	1,009,150	27,000	2.7%
Atomic energy defense activities:					
Weapons activities	3,212,347	3,456,238	3,710,002	253,764	7.3%
Defense environmental restoration and waste mgmt	5,404,660	5,466,395	5,409,310	-57,085	-1.0%
Other defense programs	1,444,885	1,473,927	1,547,700	73,773	5.0%
Defense nuclear waste disposal	129,430	248,400	200,000	-48,400	-19.5%
Total, Atomic energy defense activities	10,191,322	10,644,960	10,867,012	222,052	2.1%
Departmental administration	94,415	86,733	119,475	32,742	37.8%
Office of the inspector general	28,036	26,601	29,605	3,004	11.3%
Power marketing administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	22,423	19,843	20,900	1,057	5.3%
Southwestern power administration	21,308	29,778	26,900	-2,878	-9.7%
Western area power administration	184,352	262,551	221,665	-40,886	-15.6%
Falcon & Amistad operating & maintenance fund	—	1,000	970	-30	-3.0%
Colorado river basin	—	—	-10,000	-10,000	—
Total, Power marketing administrations	234,575	317,432	264,435	-52,997	-16.7%
Federal energy regulatory commission	—	—	—	—	—
Nuclear waste disposal fund	392,630	151,626	200,028	48,402	31.9%
Total, Energy and Water Development Activities	**15,698,495**	**15,386,985**	**15,778,202**	**391,217**	**2.5%**

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Interior and Related Agencies					
Fossil energy research and development	421,370	421,497	348,508	-72,989	-17.3%
Alternative Fuels Production	-3,900	-2,400	-4,000	-1,600	-66.7%
Naval petroleum and oil shale reserves	186,993	148,786	149,500	714	0.5%
Energy conservation	717,482	538,913	715,363	176,450	32.7%
Economic regulation	12,408	6,297	2,725	-3,572	-56.7%
Strategic petroleum reserve	243,663	287,000	221,300	-65,700	-22.9%
SPR petroleum account	-107,764	-187,000	—	187,000	100.0%
Proceeds from sale of Weeks Island Oil, SPR decommissioning	—	-100,000	—	100,000	100.0%
Energy information administration	84,645	72,379	66,120	-6,259	-8.6%
Clean coal technology	36,276	150,000	-500,000	-650,000	-433.3%
Total, Interior and Related Agencies	**1,591,173**	**1,335,472**	**999,516**	**-335,956**	**-25.2%**
Energy and Water Development	15,698,495	15,386,985	15,778,202	391,217	2.5%
Uranium Enrichment D&D fund discretionary payments	-133,700	-350,000	-422,548	-72,548	-20.7%
Excess FERC receipts	—	-42,000	-25,892	16,108	38.4%
Total, Department of Energy	**17,155,968**	**16,330,457**	**16,329,278**	**-1,179**	**-0.0%**

[1] *FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.*

DEPARTMENT OF ENERGY
FY 1997 Congressional Budget Request
Staffing Summary

	FTEs			Percent
Energy and Water Development Activities	**FY 1995**	**FY 1996**	**FY 1997**	**Change**
Energy Supply Research and Development	2,397	2,244	2,091	-7.3%
Uranium Enrichment Program Activities	56	51	46	-10.9%
Isotope Production and Distribution	9	11	11	0.0%
General Science and Research	86	92	90	-2.2%
Atomic Energy Defense Activities				
Weapons Activities	2,142	2,127	1,997	-6.5%
Environmental Restoration & Waste Mgmt	3,244	3,265	3,127	-4.4%
Materials Support & Other Defense Programs	722	777	770	-0.9%
Total, Atomic Energy Defense Activities	6,108	6,169	5,894	-4.7%
Departmental Administration	1,760	1,639	1,537	-6.6%
Office of the Inspector General	353	354	331	-6.9%
Power Marketing Administrations	4,998	4,960	4,925	-0.7%
Federal Energy Regulatory Commission	1,411	1,453	1,463	0.7%
Nuclear Waste Fund	260	248	230	-7.8%
Total, Energy & Water Development Activities	**17,438**	**17,221**	**16,618**	-3.6%

DEPARTMENT OF ENERGY
FY 1997 Congressional Budget Request
Staffing Summary

Interior and Related Agencies	FTEs FY 1995	FY 1996	FY 1997	Percent Change
Clean Coal Technology	80	76	71	-7.0%
Fossil Energy Research & Development	706	1,163	682	-70.5%
Naval Petroleum & Oil Shale Reserves	81	74	72	-2.8%
Energy Conservation	530	497	444	-11.9%
Emergency Preparedness	52	0	0	0.0%
Economic Regulation	112	90	54	-66.7%
Strategic Petroleum Reserve	156	148	139	-6.5%
Energy Information Administration	471	444	404	-9.9%
Total, Interior & Related Agencies Activities	**2,188**	**2,492**	**1,866**	-33.5%
Total Department of Energy	**19,626**	**19,713**	**18,484**	-6.6%

OVERVIEW

The Weapons Activities mission is to maintain high confidence in the safety, security, and reliability of the nation's enduring nuclear weapons stockpile within the constraints of a comprehensive test ban, utilizing a science-based approach to stockpile stewardship and management in a smaller, more efficient weapons complex infrastructure. This mission will remain as long as nuclear weapons remain a cornerstone of U.S. national security policy. Weapons Activities has three primary goals: (1) Provide high confidence in the safety, security and reliability of the U.S. stockpile to ensure the continuing effectiveness of the U.S. nuclear deterrent while simultaneously supporting U.S. arms control and nonproliferation policy; (2) Provide a small, affordable and effective production complex to provide component and weapon replacements when needed, including limited lifetime components and tritium; and (3) Provide the ability to reconstitute U.S. nuclear testing and weapon production capacities, consistent with Presidential Directives and the Nuclear Posture.

Weapons Stockpile Stewardship

The Stockpile Stewardship program will address issues of maintaining confidence in stockpile safety and reliability without underground nuclear testing through a technically challenging science-based stockpile stewardship program utilizing upgraded or new experimental and computational capabilities. The Stewardship budget continues initiatives in dynamic radiography, lasers and pulsed power, and the Accelerated Strategic Computing Initiative to acquire and use data to improve predictive capabilities which will be the foundation of the science-based stewardship approach. The request also includes second year construction funding for the National Ignition Facility and continues to transition the Technology Transfer program from cooperative research and development agreements motivated to enhance the Nation's industrial competitiveness to partnerships as a means to accomplish Stockpile Stewardship mission objectives.

Weapons Stockpile Management

Stockpile Management supports the following subprograms: Core Stockpile Management; Radiological/Nuclear Accident Response; Reconfiguration; Tritium Source; and Materials Surveillance. The Core Stockpile Management Program will maintain, evaluate, modify, improve, and dismantle warheads, bombs, and shells in accordance with the nuclear weapons stockpile plan. The Enhanced Surveillance initiative will be continued and production capabilities maintained. The Radiological/Nuclear Accident Response Program continues maintenance of DOE's technical and operational capabilities for responding to radiological accidents/incidents worldwide. The Reconfiguration Program continues consolidation of nonnuclear manufacturing activities. The Tritium Source Program includes funding to support the Department's dual-track strategy to provide an assured source of tritium. The Materials Surveillance Program provides funding for ongoing materials processing and recovery activities at Oak Ridge facilities; and materials surveillance and disposition activities at former Defense Programs sites.

Weapons Program Direction

Program Direction provides funds for personnel-related expenses, capital equipment, and contractual services for Weapons Activities. In FY 1997, all federal staffing costs and associated contractual support funding has been moved from Stockpile Stewardship and Management into Program Direction. The statutory Community Assistance Program at Los Alamos, New Mexico, is also funded in Program Direction.

The **Other Defense Activities** budget provides for the activities of the Office of Nonproliferation and National Security; Defense Environment, Safety and Health; Worker and Community Transition; Fissile Materials Disposition; International Nuclear Safety; Nuclear Security; and Naval Reactors.

Nonproliferation and Verification Research and Development

The Nonproliferation and Verification Research and Development program maintains the remote sensing and regional monitoring systems activities. The program continues to provide the technology and tools to assist in arms control treaty verification, technical intelligence collection and processing technologies, and the technologies to detect the proliferation of weapons of mass destruction. The program has assumed directed responsibility for all Comprehensive Test Ban research and development for underground, underwater, atmospheric, and space nuclear detonation detection.

Arms Control and Nonproliferation

The Arms Control and Nonproliferation program is the focal point within the Department for activities which support the President's arms control and nonproliferation policies, goals, and objectives as well as statutorily-mandated activities. The program integrates and orchestrates the Department's assets and efforts, including those of its national laboratories and contractors in accomplishing its five major program priorities: secure nuclear materials and expertise in Russia and the Newly Independent States; limit weapon-useable fissile materials; establish transparent and irreversible nuclear reductions; strengthen the nuclear nonproliferation regime; and control nuclear exports. The program provides leadership and representation for the Department in the interagency, national and international communities.

Intelligence

The Intelligence program continues to assess the activities of existing and emerging nuclear weapon states, and nuclear supplier states, and other issues such as theft and smuggling of nuclear materials in support of the Department's policy makers and Intelligence Community. The program provides technical, analytical, policy and implementation support to the efforts of the nation's policy community to deal with such complex issues as the rollback of potential proliferant programs, denuclearization of the Korean peninsula, the protection of fissile material in the Former Soviet Union and the achievement of arms control objectives, such as the Comprehensive Test Ban Treaty and the Nuclear Nonproliferation Treaty.

Nuclear Safeguards and Security

The Nuclear Safeguards and Security program provides effective policy and training for protection of the Department of Energy's nuclear weapons, nuclear materials, classified information, and facilities. The program also provides technology development, technical direction and support to domestic safeguards and security at Departmental facilities. The Declassification program implements effective classification and declassification information policies.

Security Investigations

The Security Investigations program supports background investigations for federal and contractor personnel who, in the performance of their official duties, require security clearance permitting access to Restricted Data, National Security Information, or Special Nuclear Material.

Emergency Management

The Emergency Management program provides a single point of contact and control to ensure comprehensive, integrated emergency planning, preparedness, and response programs throughout the Department; ensures an integrated Departmental response to emergencies affecting Departmental operations and activities; and provides threat assessment support to the Department's Headquarters and field operations.

Nonproliferation and National Security Program Direction

Nonproliferation and National Security Program Direction consolidates all federal staffing costs for the Office of Nonproliferation and National Security. Program Direction provides funds for personnel-related expenses, capital equipment, and contractual services.

Defense Environment, Safety and Health

The Department budgets for environment, safety and health activities in two appropriations accounts, the non-defense within Energy Supply Research and Development and the defense within Other Defense Activities. The Defense Office of Environment, Safety and Health programs will strive to continually provide improved Department-wide environment, safety and health support through: (1) consistent, multidisciplinary credible oversight processes for evaluating the effectiveness of environment, safety, health, and safeguards and security programs; and (2) epidemiologic studies that examine possible linkages between exposures or conditions at DOE sites and adverse health effects among groups of workers and off-site populations; overseeing epidemiologic studies on the health and population groups in the Marshall Islands who have been exposed to ionizing radiation; and promoting high quality workplace medical services to DOE and contractor employees. The Defense Environment, Safety and Health account is focused on Oversight and Health Studies with a separate decision unit for Program Direction.

Worker and Community Transition

The Worker and Community Transition program mitigates the impacts on workers and communities from contractor work force restructuring at defense sites, and assists community planning for defense conversion, while humanely and cost-effectively managing the transition to the reduced work force to better meet ongoing mission requirements. The program places increased emphasis on assistance for local economic development authorities, to promote rapid and effective defense conversion with new private sector jobs for displaced workers and new businesses for the community. The Worker and Community Transition program includes a separate decision unit for Program Direction.

Fissile Materials Disposition

The Fissile Materials Disposition program is responsible for the Department's technical and management activities to provide for the safe, secure, environmentally sound future storage of all weapons-usable fissile materials and the disposition of fissile materials declared surplus to national defense needs. The program is completing engineering, design, cost, schedule, nonproliferation, and environmental analyses of storage and disposition alternatives being considered in order to support a decision process resulting in a Record of Decision (ROD) for the disposition of highly enriched uranium (second quarter of 1996) and future long-term storage actions and disposition technologies for plutonium (late 1996). Follow-on activities involve: beginning the design phase for site specific long-term storage; completing the plutonium pit disassembly and conversion demonstration; and tests and research demonstrations of disposition technologies prior to implementation. The Fissile Materials Disposition program includes a separate decision unit for Program Direction.

International Nuclear Safety

The International Nuclear Safety program is designed to reduce the national security and environmental threats posed by the operation of unsafe and aging nuclear facilities around the world. Particular attention is paid to improving the safety of Soviet-designed nuclear power plants and to the shutdown of the Chernobyl plant, site of the world's worst nuclear disaster. The program also helps maintain core competencies in nuclear safety through the establishment of international nuclear safety centers in the U.S. and elsewhere, and through cooperative research and development with other countries and international organizations.

Nuclear Security

The Nuclear Security program supports efforts to reduce the threats posed by continued operation of reactors that produce weapons materials, and to promote management practices that minimize the risks of proliferation of weapons-usable nuclear materials. Particular attention is paid to implementation of the U.S.-Russian agreement to cease the production of weapons grade plutonium. Additional program elements address spent fuel management, and the safety and nonproliferation concerns related to breeder reactors in the Soviet Union.

Naval Reactors

The Naval Reactors program provides the Navy with safe, long-lived, militarily-effective nuclear propulsion plants in keeping with the Nation's defense requirements, and ensures their continued safe and reliable operation. The program efforts include supporting the fleet with over 120 operating reactors across nine different classes; continuing development of the New Attack Submarine class required by the Navy to maintain a viable submarine force and industrial base; and performing test plant (prototype) inactivation. The prototype plant inactivation effort accomplishes environmental remediation, enables Naval Reactors to obtain important core performance data, and reduces caretaker and manning costs. The Naval Reactors program includes a separate decision unit for Program Direction.

11

Weapons Activities

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DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

WEAPONS ACTIVITIES

VOLUME I

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Weapons Activities					
Stockpile stewardship	1,407,520	1,495,969	1,576,767	80,798	5.4%
Stockpile management	1,587,001	1,844,080	1,798,831	-45,249	-2.5%
Program direction	365,242	326,933	334,404	7,471	2.3%
Subtotal, Weapons activities	3,359,763	3,666,982	3,710,002	43,020	1.2%
Use of prior year balances	-147,416	-210,744	——	210,744	100.0%
Total, Weapons Activities	**3,212,347**	**3,456,238**	**3,710,002**	**253,764**	**7.3%**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ATOMIC ENERGY DEFENSE ACTIVITIES
WEAPONS ACTIVITIES

PROPOSED APPROPRIATION LANGUAGE

For Department of Energy expenses, including the purchase, construction and acquisition of plant and capital equipment and other incidental expenses necessary for atomic energy defense weapons activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion; and the purchase of passenger motor vehicles (not to exceed [79, of which 76 are] 94 for replacement only), [including one police-type vehicle), $3,460,314,000] $3,710,000,002 to remain available until expended.

EXPLANATION OF CHANGE

Changes in appropriation language relate only to the numbers of vehicles to be acquired.

WEAPONS ACTIVITIES
EXECUTIVE BUDGET SUMMARY

VISION Maintain high confidence in the safety, security and reliability of the nation's enduring nuclear weapon stockpile within the constraints of a comprehensive test ban, utilizing a science based approach to stockpile stewardship within a smaller, more efficient weapons complex infrastructure.

STRATEGY Rely on scientific understanding and expert judgement, rather than on underground nuclear testing, and the development of new weapon designs, to predict, identify and correct problems affecting the safety and reliability of the enduring stockpile. View the stockpile life cycle as essentially a "closed loop" and develop enhanced experimental capabilities and new tools in computations, surveillance, and advanced manufacturing to meet future needs to recertify weapon safety and reliability without underground nuclear testing. Maintain, and modify weapons to remediate potential safety and reliability issues, and retire and dismantle weapons as needed to meet arms control objectives. As new tools are developed and validated, incorporate them into a smaller, cleaner, more flexible and agile weapons complex infrastructure for the future.

POLICY FRAMEWORK

Over the past several years, the United States policy governing the nuclear weapons stockpile has undergone profound change to reflect the new and evolving geopolitical and military structures of the post Cold War world. In 1992, the United States announced a halt in the production and design of new nuclear weapons and a moratorium on underground nuclear testing. In 1993 and 1994, the President and the Congress directed the Secretary of Energy to establish a stockpile stewardship program to ensure the preservation of the core intellectual and technical competencies of the United States in nuclear weapons.

In February, 1995, the Secretary of Defense submitted to the President and the Congress the Nuclear Posture Review, which established requirements for the Department of Energy related to maintaining nuclear weapons infrastructure and capabilities, and ensuring tritium availability. The requirements for DOE were stated in terms of "infrastructure to support U.S. nuclear forces," delineated specifically as follows: maintain nuclear weapon capability (without underground nuclear testing), develop a stockpile surveillance engineering base; demonstrate the capability to design, fabricate and certify weapon types in the enduring stockpile, maintain the capability to design, fabricate, and certify new warheads, maintain a science and technology base needed to support nuclear weapons, and, decide (both DoD and DOE) on a source and a production program for the tritium supply to support nuclear weapons. No new-design nuclear warhead production is required.

In August, 1995, the President announced that the United States would pursue a true zero yield Comprehensive Test Ban Treaty (CTBT) as a means of reducing the danger posed by nuclear weapons proliferation. The President outlined a series of safeguards that define the terms under which the U.S. would enter a CTBT. Safeguard A directs the conduct of the Stockpile Stewardship program to ensure the safety and reliability of the stockpile.

In January, 1996, the Senate gave overwhelming approval to the START II Treaty. The treaty ratification text highlighted the nation's commitment to proceed with a robust stockpile stewardship program, to reestablish and maintain sufficient production capabilities and capacities, to maintain the U.S. nuclear weapons laboratories and the core competencies therein to ensure rapid access to a new production source for tritium within the next decade, and to maintain the Nevada Test Site at a level which would enable timely resumption of underground nuclear testing if directed by the President.

PROGRAM OVERVIEW

The Defense Programs Stockpile Stewardship and Management Program is a single, highly integrated technical program for maintaining the safety and reliability of the U. S. nuclear stockpile that has evolved in response to these many new policies. Traditionally, the activities of the three weapons laboratories and the Nevada Test Site have been regarded somewhat separately from those of the weapon production plants. However, although there remain separate budget decision units within Weapons Activities, all stockpile stewardship and management activities have achieved a new, closer linkage to each other as evidenced in the draft Stockpile Stewardship and Management Plan and the ongoing Programmatic Environmental Impact Statement process.

There are three primary goals of the Stockpile Stewardship and Management Program:

- Provide high confidence in the safety, security and reliability of the enduring U. S. stockpile to ensure the effectiveness of the U.S. nuclear deterrent while simultaneously supporting U. S. arms control and nonproliferation policies;

- Provide an appropriately sized, affordable, environmentally sound, and effective production complex to provide component and weapon replacements when needed, including limited lifetime components and tritium; and

- Provide the ability to resume U.S. nuclear testing and reconstitute nuclear weapon production capacities, consistent with Presidential Directives, the Nuclear Posture Review and the START II Treaty, should national security so demand in the future.

In developing the programs and associated budgets to meet these goals, we assumed the "lead plus hedge" strategy articulated in the Nuclear Posture Review. Implicit in this strategy is the requirement to be able to achieve START II stockpile levels in concert with Russian stockpile reductions, while retaining the ability to reconstitute to START I levels if necessary. During the intensive Stockpile Stewardship and Management planning processes we have had underway for the past two years, strategies and programs have been developed in response to the critical issues addressing this requirement.

The Stockpile Stewardship program addresses issues of maintaining confidence in stockpile safety and reliability without underground nuclear testing through a technically challenging science based stockpile stewardship program utilizing upgraded or new experimental and computational capabilities. The Stewardship programs are planned to meet the infrastructure requirements contained in the Nuclear Posture Review. The Stewardship programs continue initiatives in archiving, and in dynamic radiography, lasers and pulsed power, and accelerate research and development in advanced computations to acquire and use data to improve predictive capabilities which will be the foundation of the science based stewardship approach.

The Stockpile Management program continues with its historical responsibilities to provide near term and long range support for the enduring stockpile, and for ensuring an adequate supply of tritium. Along with stockpile surveillance, this includes normal maintenance, corrective maintenance and system refurbishment, as well as weapon dismantlement. The programs are supportive of the infrastructure requirements cited in the Nuclear Posture Review. The DOE also has completed a Programmatic Environmental Impact Statement for tritium production, and is pursuing a dual-track approach to select a production method at a later date.

In the new paradigm of closer integration between Stockpile Stewardship and Management activities, there are also issues that will be addressed jointly. The Stewardship program will play a major role in reducing the vulnerability of the smaller stockpile to single-point and common-mode failures, principally through research base support of the new Enhanced Surveillance initiative funded in the Stockpile Management decision unit. The Stewardship and Management programs also have shared responsibilities in advanced manufacturing and systems engineering studies to integrate technological drivers such as advanced computing into an efficient and effective production complex of the future. The Dual Revalidation program, managed by Stockpile Management, will encompass both laboratories and plants in a new joint process for validating the safety, reliability and performance of the stockpile over time. Finally, the Radiological/Nuclear Accident Response program, funded by Stockpile Management, utilizes capabilities throughout the weapons complex, including weapons

expertise at the laboratories and specialized capabilities resident at the DOE facilities in Nevada.

SUMMARY OF PROGRAM CHANGES

This section highlights changes that resulted from FY 1996 Congressional action, and major changes between FY 1996 and the FY 1997 Congressional Request.

Stockpile Stewardship

Accelerated Strategic Computing Initiative (ASCI) - The FY 1996 appropriations act provided an additional $40 million over the requested $45 million for the ASCI program in FY 1996. The increase will be used to accelerate full development of 3- dimensional computer codes for safety and performance in the high energy density (secondaries) and low energy density (primaries) regimes, and initiation of computer models for selected high priority aging issues of concern for the current stockpile. We also plan to execute the second computer platform and software partnership with industry. We will also undertake full development of high speed, network based storage systems, and development of high speed classified networks among the three nuclear laboratories. The growth of $36.6 million from FY 1996 to FY 1997 continues this momentum in all aspects of the program, including planned support for a third platform and software partnership to be undertaken by the Computations and Modeling core activities in FY 1997.

Technology Transfer - The FY 1996 appropriations act provided $150 million for Technology Transfer, a decrease of $79 million below the FY 1996 request. In addition, $51 million of the $90 million prior year balances in this program have been redirected to meet the required reduction in prior year balances included in the appropriations act. All cognizant committees in both the Senate and House indicated a desire to transition and refocus these efforts to more closely support the weapons program and the future needs of the Stockpile Stewardship and Management program in advanced manufacturing and advanced computations.

The FY 1996 funding level has resulted in the early termination of some activities, as well as reductions to the scope of many other projects to permit a decrease in outyear mortgages of nearly a third. We do not expect to initiate any major new partnerships in this program in FY 1996. The FY 1997 request reduces these activities by $99.6 million, continuing the transition of completing current projects and redeploying laboratory personnel back into the mainline programs of Stockpile Stewardship and Management, particularly in the areas of advanced computations and advanced manufacturing technology.

Education - The FY 1996 appropriations act provided $10 million to continue the Education programs funded in Stockpile Stewardship, $10 million less than the request. The 50 percent reduction in the education program results in no new education initiatives, significant reduction in non-mission related projects, and reprioritization of mission related projects. The FY 1997 request continues at the $10 million level. A new initiative for a Fellowship program in the Stockpile Management program, detailed in the authorization bill, is planned to be accommodated within available stockpile management funding.

Los Alamos Neutron Science Center - The FY 1996 and FY 1997 funding allocation for this facility is $35 million.

Stockpile Management

Stockpile Management - The appropriations act provided an increase of $106 million over the request for these activities. These funds have been allocated on a basis that is responsive to the various desires of the cognizant congressional committees while reflecting the realities of the budget process and evolving mission priorities in the weapons production complex.

Tritium - The FY 1996 appropriations act included $50 million for these activities with guidance that is generally consistent between the House and Senate reports. However, several events occurred in the same time frame as the enactment of the bill that have led to a need for additional funding for tritium activities in FY 1996.

First, the 1996-2001 Nuclear Weapons Stockpile Memorandum approved by the DOE and DoD and forwarded to the White House on January 5, 1996, established the need to protect

the option of providing tritium earlier than 2011, if necessary. Second, consistent with the Secretary's Record of Decision, announced on December 6, 1995, the Department is proceeding with a dual-track strategy to assure a future tritium source. One track will explore the purchase of an operating or partially complete commercial light-water reactor (CLWR) or the purchase of irradiation services from such a reactor. The second track will be to design, build, and test critical components of an accelerator system for production of tritium (APT). The Dual Track approach expanded the planned CLWR activities from what had been requested in the FY 1996 budget. Formerly, CLWR activities were limited to developing a target that could be used for contingency production of tritium should the APT schedule slip, or to expand production beyond planned levels should the need arise. Now, both the CLWR and APT options will be developed through 1998 before a down-selection of the preferred technology is undertaken. Third, as part of the Record of Decision, if an APT facility is built, it would be located at the Savannah River Site (SRS), and an extraction facility for CLWR targets would also be built at SRS to support either the primary or backup tritium production source.

These events all contribute to a need for additional funding for tritium related activities in FY 1996, related to adding SRS site specific activities to the scope of work planned for FY 1996. Both APT and CLWR activities need to be initiated/accelerated in FY 1996 to meet the accelerated tritium need date.

Accordingly, the Department allocated $25 million of the $106 million increase provided by the appropriations act for Stockpile Management to the tritium activities. This internal change is within appropriations base table controls, and is consistent with guidance contained in the authorization act. This change will increase the Tritium total to $75 million in FY 1996. The funding is planned to be allocated as follows: Accelerator Production of Tritium ($62 million); and, Commercial Light Water Reactors ($13 million). Approximately $6 million of the $75 million appropriated is planned to initiate a CDR, supporting the accelerator alternative. The estimated cost of the CDR is $74 million as described in the notification letter to the Congress dated February 12, 1996, and is to be completed during FY 1998. We will continue to evaluate these emerging requirements during FY 1996 to determine if additional funding needs to be redirected to tritium-related activities during the year.

The FY 1997 request for Tritium activities is $100 million. The increase of $25 million over the FY 1996 level is largely to support the prime engineering contractor scheduled to be on board late in FY 1996. This contractor will lead the engineering effort for the preliminary and final design efforts and for construction activities related to the accelerator production of tritium option.

Program Direction

Defense Programs continues to move out aggressively to transform its organization for the future. Since 1992, DP has streamlined its Headquarters organization by reducing 129 FTE's and redeploying staff to meet emerging needs. Since 1993, Headquarters organizational elements have been reduced from 71 to 24, a reduction of 47 components (66 percent). Also, DP has eliminated all third tier "Division" components, resulting in a reduction of managers and supervisors from 89 to 28. The current ratio of supervisors to employees is 1:12. Contractual support was reduced about 20 percent from FY 1993 to FY 1997. Secretarial Strategic Alignment Initiative reductions to travel, information resources management, support services contracting, and employment have been factored into the FY 1997 budget request.

The FY 1997 budget request also reflects a major structure change. In FY 1996, the appropriations committees directed that each departmental entity funded by Energy and Water Development appropriations consolidate its Federal Support resources within one appropriation account. Consequently, this budget reflects the shift of Federal support expenditures for all Headquarters and Field activities from the Stockpile Stewardship and Stockpile Management decision units into the Program Direction decision unit. This has resulted in over $200 million in comparability transfers in each year, reflecting the realignment of Federal staff formerly funded in the decision unit for which they provided line program oversight. Each of the three Weapons Activities decision units contains a crosswalk table that addresses this change.

Use of Prior Year Balances

In the FY 1996 amended budget request, DP proposed to finance $98.5 million of its request for new obligational authority by redeployment of prior year balances. The appropriations act increased the use of prior year balances by $111.2 million to $209.7 million for FY 1996. This additional drawdown of end of year FY 1995 balances has resulted in DP's balances

for most programs being at or below the GAO standards (12% operating, 50% capital equipment) after adjusting for balances "protected" for specific requirements. A reduction of this magnitude cannot be accommodated by looking for program efficiencies. Rather, it results in the need to discontinue activities begun in "prior years" -- to make programmatic reductions -- to meet the appropriated reduction. Nearly half of the $111 million additional drawdown had to be absorbed by the Technology Transfer program, as discussed earlier, because most other operating programs end of year balances were already below the 12% standard needed to maintain ongoing business operations. Using the Technology Transfer program balances was only possible because of the Congressional direction and reduced appropriations which resulted in the need to rescope or terminate many ongoing activities. Capital equipment balances were reduced to no more than 50 percent, and small additional reductions were taken to some construction projects.

HIGHLIGHTS OF THE FY 1997 BUDGET REQUEST

The Stockpile Stewardship and Management programs are ending the transition period that began in 1992 with the halt of new weapons production and underground nuclear testing. As indicated in Table 1, funding available for these programs declined precipitously during this period, but has now stabilized in support of the new programs and initiatives needed to support Stockpile Stewardship and Management within the post Cold War policy framework.

Program Increases

The FY 1997 Stockpile Stewardship request is increased by 5.4 percent over FY 1996. We plan to increase funding for initiatives in the base program for computations and modeling (+$29.6 million), the Accelerated Strategic Computing Initiative (+$ 36.6 million), in lasers with the National Ignition Facility (+ $35.6 million operating and +$94.5 million construction), and in advanced hydrodynamic testing research through the LANSCE facility and with construction of the DARHT Facility. The advanced computing increase in the base program supports hardware acquisition of a computer system which will be used to meet current laboratory workload as well as provide an environment for ASCI-funded applications research. The success of the ASCI initiative depends in part on the vitality of the computations and modeling base program activities upon which it builds. The increase for ASCI is second year program funding that supports growth in all major thrusts of the program, including support for three industry partnerships for platform and software development.

The increase for the NIF construction project reflects the shift from non-site specific Title I/Preliminary Design to Title II/Final Detailed Design and pre-construction site preparation activities. Other project costs for the NIF are also increased ($+35.6 million) to support manufacturing readiness and vendor facilitization activities on the major optical components headed for NIF. Increases for advanced hydrodynamic research and development contained in the Physics subprogram (net + $9.5 million) is for technology development needed for the next generation advanced hydrodynamics facility. No FY 1997 construction funding is requested for the DARHT facility because funding previously appropriated in FY 1995 and FY 1996 for the project remains unobligated in reserve due to the work stoppage associated with the injunction. This funding will be sufficient to restart the project when the injunction is lifted and carry through until FY 1998.

Overall, the Stockpile Management request declines about 2.5 percent below FY 1996 appropriations. The program to pursue a dual track strategy leading to the selection in 1998 of a new production technology for a tritium source continues in FY 1997 (+ $ 25 million). A funding increase of $29 million is also included in the Stockpile Management account to fund the one time payment of $49 million ($10 million funded in FY 1996, $39 million in FY 1997) for DP pension fund and sales tax liabilities for the Mound and Pinellas plants, the liability for which was incurred prior to their transfer to the Assistant Secretary for Environmental Restoration and Waste Management (EM) in FY 1996.

A major new initiative, the Enhanced Surveillance Program (ESP) continues in FY 1997 (+ $25 million). The intent of the ESP is to provide advanced capability to measure , calculate and predict the effects of aging on weapons components and to extend the reliability, safety and performance of the existing weapons beyond their original design life. The three weapons laboratories and four production plants are participating in the program. A draft five year program plan is in final review. The Plan will be revised and extended in future years. The expected duration of the program is 5 to 7 years, and the annual funding commitment rises from $40 million requested in FY 1997 to $60 million in FY 1998 through FY 2000.

The increase for the Tritium activities of $25 million over the FY 1996 level is largely to support the prime engineering contractor scheduled to be on board late in FY 1996. This contractor will lead the engineering effort for the preliminary and final design efforts and for construction activities related to the accelerator production of tritium option.

Defense Programs

Historical Weapons Activities Funding
(Constant FY 1996 Dollars in Billions)

TABLE 1

The request for Program Direction increases 2.2 percent over FY 1996, reflecting the costs of downsizing the workforce and the allocation of the Working Capital Fund to DP by Departmental Administration.

Program Decreases

The only major decrease in the FY 1997 request is associated with the continuing transition of the Technology Transfer (- $99.6 million) program activities. From a separate program where cooperative research and development agreements (CRADA's) involved laboratory scientists and engineers in dual benefit research and development motivated to enhance the nation's industrial competitiveness, our new concept will utilize industrial partnerships as a means to meet the objectives of the Stewardship and Management Plan. Using partnerships in this manner allows us to leverage the vast resources of the private sector to cost share the development of the best, most efficient and most affordable technologies for the future.

Use of Prior Year Balances

Defense Programs does not plan to offset the FY 1997 request for new budget authority by the reapplication of prior year balances. As stated earlier, since 1990, Defense Programs has had a management system in place (Financial Information Variance Reporting System - FIVRS) to project and analyze program uncosted balances throughout the year. These balances are taken into account wherever possible when developing each budget request. In fact, since 1994, Defense Programs has offset the need for about $1.4 billion in new budget authority by the redeployment of prior year balances. This was possible only because of the sudden mission change for Defense Programs which resulted in significant program changes that resulted in growth of balances. Canceled and rescoped construction projects associated with the former weapons production activity provided a large portion of this uncosted balance; however, these are "one time savings" only. Once projects are rescoped or canceled and the balances redeployed, there are no more to be utilized.

As part of DP's comprehensive approach to financial management, construction project uncosted balances are reviewed monthly, and rejustified annually. We plan funding requests for projects to minimize balances wherever possible during construction, and have taken steps to accelerate contract closeout for completed projects so that the small residual balances can be redeployed as soon as final audits have been completed. At the direction of the DOE CFO, we have also eliminated the requirement for "prefinancing" for our major M&O contractors, which has allowed us to reduce operating expense balances from the formerly required 3 months' funding (over 25 percent) to less than 12 percent today. Capital Equipment balances have been drawn down significantly -- some to reflect the change and shrinkage in programmatic activities, and the rest to conform with GAO's recommended standard of no more than 50 percent. However, it is important to understand that often, uncosted balances for capital equipment are associated with long-lead equipment awaiting delivery, or delivered but not yet installed; therefore, reductions to capital equipment balances must not be made capriciously or great inefficiencies can result.

Although there is always a risk that unplanned program delays can cause growth in end of year uncosted balances, Defense Programs remains committed to monitoring, analyzing, and justifying uncosted balances which are needed for prudent business management of our programs and facilities.

Other Topics

The **Dual Revalidation** program, approved by the Nuclear Weapons Council in January, 1996, establishes a new joint process for validating, with high confidence, that the stockpile will continue to be safe and reliable and will meet its military characteristics and stockpile-to-target-sequence requirements over time (particularly in the absence of underground nuclear testing and with no new warhead development.) The W76 was selected as the first system for revalidation. Two independent design teams, an original design team comprised in part by DOE personnel from the laboratory that originally designed the system, and an independent review team comprised in part by DOE personnel from the other laboratory, will provide a baseline assessment of the health of the W76 today, and a process to uncover weaknesses that may need to be addressed in the future. Dual Revalidation is expected to take between 2 and 3 years for each stockpile weapon. The Dual Revalidation process will utilize many capabilities throughout the weapons complex, and as such will be funded as part of existing Stockpile Management and Stockpile Stewardship programs.

Our strategy for **future programs in advanced manufacturing** will be undergoing an assessment in FY 1996, leading to a comprehensive program plan projected for fall, 1996. This program, which will retain the name ADAPT, is intended to provide focus, guidance and funding support for DP activities in the development and employment of advanced design and production technologies. Specifically, we plan to develop a strategy and plan, consistent with the PEIS preferred alternative, for incorporating advanced design and production technologies into DP's reconfiguration and right-sizing efforts. In addition, we will articulate R&D goals for advanced design and production technologies. We will pursue development and transition of the highest leverage technologies into the DP production complex. We plan to apply transition products in high priority Stockpile Life Extension Programs and surveillance programs both to improve performance and to evaluate technology utility. The participants in this program will be the laboratories, the production plants, and selected industrial partners. The expected duration of the program is 8 to 10 years, commencing in FY 1998.

During FY 1997, advanced manufacturing activities will be continued through the Technology Transfer program, and as an ongoing integral component of the Core Stockpile Stewardship technology base. The expected funding level for future activities will depend upon the program plan and funding availability in the outyears.

The draft **Stockpile Stewardship and Management Programmatic Environmental Impact Statement** released on February 28, 1996, contains a blueprint for a nuclear weapons complex of the future that maintains the safety and reliability of the stockpile without underground testing, and operates more cost-efficiently and safely. Under the preferred alternative, by 2005 the nuclear weapons production complex would be one-fifth of its size at the height of the Cold War. The preferred alternative for the Stockpile Stewardship program proposes the construction and operation of the National Ignition Facility and the Contained Firing Facility at the Lawrence Livermore National Laboratory, and the ATLAS Facility at the Los Alamos National Laboratory. All three of these facilities will be used to examine different aspects of physics that are key to understanding weapon safety and reliability. The preferred alternative for the Stockpile Management program encompasses the downsizing in place of the following activities: weapons assembly/disassembly at the Pantex Plant, nonnuclear component fabrication at the Kansas City Plant, and weapons secondary and case component fabrication at the Y-12 Plant. In addition, it calls for the reestablishment of a small pit component fabrication capacity at the Los Alamos National Laboratory. At this time, there is no preferred alternative for high explosive component fabrication.

The preferred option has a number of advantages over other options analyzed. First, it is the most cost-effective solution. Second, it lowers technical risk and provides flexibility to support potential variances in stockpile size. Third, it minimizes the socioeconomic impact on the worker and communities surrounding the facilities.

The Department will conduct public hearings at each of the affected sites in March and April 1996. The comment period is expected to run through April 1996. A final Environmental Impact Statement is scheduled in July, followed by a Record of Decision in August 1996.

The impact of the announcement of the preferred alternative on the FY 1996 and FY 1997 budgets is minimal. Funding for the three Stockpile Stewardship facilities highlighted above has been programmed into the FY 1997 and outyear budget requests. Within Stockpile Management, it is expected that approximately $21 million in operating expense will be used to support pre-Title I activities over the next two years in support of the preferred alternative.

FY 1997 BUDGET ISSUES

The most significant issue facing the program in FY 1997 is the need to find the appropriate balance between the base activities and the important new initiatives throughout the budget. Historically, the strength of Defense Programs has depended in great measure on the vitality of the technology base within our laboratories which has enabled the nation to address new threats, to adjust to changing missions, and respond quickly to unexpected problems and changed circumstances. Many of the initiatives we have undertaken to allow us to transition to the science based approach to stockpile stewardship are designed to accelerate or enhance efforts ongoing in the base programs. It is essential that we not dilute the strength of the base programs while expecting these enhancements to succeed. We have included enhancements to the base computations program which are needed to underpin the accelerated research in ASCI; the success of the NIF construction project is inextricably bound to successful progress in the base ICF research and development programs; and technology base research in physics is essential to the technology development needed for the next generation hydrodynamic testing facility needed for the Stewardship program. We must continue to pursue our new initiatives, but not at the expense of the core programs upon which they build. In the transition to science based stewardship of the stockpile, the strength of a program without underground nuclear testing rests ultimately with the science base.

PROGRAM PERFORMANCE MEASURES

Program performance measures are included as an integral part of the justification for each Weapons Activities program category. Summary level performance measures for Stockpile Management and Stockpile Stewardship are included within the respective Program Mission writeups. Following are some major programmatic indicators for overall Defense Programs performance in Stockpile Stewardship and Management activities.

1. Reduce the weapons stockpile by dismantling weapons in FY 1997 without adversely affecting the environment, public safety and health.
2. Replace underground nuclear testing with science by continuing to redirect DOE weapons programs to maintain confidence in the enduring stockpile through the science based Stockpile Stewardship program.
3. Maintain the reliability of the future stockpile by developing a replacement source for tritium.
4. Determine the size and scope of the nuclear weapons complex by completing the Stockpile Stewardship and Management PEIS process.
5. Achieve Critical Decision 3 for the National Ignition Facility to begin physical construction in FY 1997.
6. Protect the FY 1998 decision point for downselection of technology for an assured source of tritium.

Victor H. Reis
Assistant Secretary for Defense Programs

3/1/96
Date

BUDGET OVERVIEW

Defense Programs' five year budget projections contained in the National Security Five Year Budget Plan FY 1996 - FY 2000 (March 1995) indicate that the Stockpile Stewardship and Management programs will require increased funding for a period of several years after FY 1996. This baseline has been modified to reflect FY 1997 program and budget decisions, but the general outlook is much the same: near term investment must be increased to transition to an appropriately sized, effective complex and to develop the new tools required to maintain confidence in the safety, security and reliability of the stockpile in the absence of underground nuclear testing. From a base of about $3.6 billion in FY 1996, the annual total may reach $4.0 billion annually by FY 1998. The Department is, however, aggressively changing the way it does business which may mitigate the growth in this curve somewhat. It is anticipated that the Department's initiatives for program and management improvements will lower the funding required during the 1997 - 2000 fiscal years.

THREE YEAR BUDGET SUMMARY ($ in Thousands)

	FY 1995 Adjusted/Comparable	FY 1996 Appropriation	FY 1996 Comparable	FY 1997 Request
Stockpile Stewardship	1,407,520	1,567,175	1,495,969	1,576,767
Stockpile Management	1,587,001	2,025,083	1,844,080	1,798,831
Program Direction	365,242	115,000	326,933	334,404
Subtotal, Directed Program	3,359,763	3,707,258	3,666,982	3,710,002
Adjustments, Use of Prior Year Balances	(147,416)	(246,944) [1]	(210,744)	--
Total, Weapons Activities (New OA)	3,212,347	3,460,314	3,456,238	3,710,002
Federal Staff (FTE)	2,177	2,126	2,126	1,997

All budgetary information for decision units in Weapons Activities is shown on a **comparable** basis to the FY 1997 request. Comparability adjustments (relating mainly to the congressionally-mandated transfer of federal support expenditures to Program Direction) and structure changes are highlighted in the overview for each decision unit.

[1] Includes $37,200,000 in Streamlining Savings directed by the appropriations act, not attributable to use of Prior Year Balances.

TOTAL WEAPONS ACTIVITIES FUNDING BY SITE

(Dollars in Thousands)

	TOTAL WEAPONS ACTIVITIES			Weapons Program Direction			Weapons Stockpile Stewardship			Weapons Stockpile Management		
	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997
ALBUQUERQUE OPERATIONS OFFICE												
Albuquerque Operations Office	249,864	290,474	306,998	175,057	170,965	169,961	841	530	0	73,966	118,979	137,037
Kansas City Plant	288,943	314,470	277,100	0	0	0	6,406	3,336	2,400	282,537	311,134	274,700
Los Alamos National Laboratory	442,525	547,983	573,018	0	0	0	314,593	357,417	352,526	127,932	190,566	220,492
Mound Plant	500	175	0	0	0	0	500	175	0	0	0	0
Pantex Plant	252,575	281,295	264,959	0	0	0	150	175	0	252,425	281,120	264,959
Pinellas Plant	5,152	6,680	18,267	0	0	0	557	0	0	4,595	6,680	18,267
Sandia National Laboratories	652,203	638,060	584,557	0	0	0	453,660	433,662	395,337	198,543	204,398	189,220
SUBTOTAL, AL	1,891,762	2,079,137	2,024,899	175,057	170,965	169,961	776,707	795,295	750,263	939,998	1,112,877	1,104,675
CHICAGO OPS OFFICE												
Argonne National Laboratory	1,490	1,310	126	0	0	0	1,380	1,200	0	110	110	126
Brookhaven National Laboratory	1,163	1,980	3,300	0	0	0	0	0	0	1,163	1,980	3,300
Chicago Operations Office	19,647	30	30	0	0	0	0	0	0	19,647	30	30
SUBTOTAL, CH	22,300	3,320	3,456	0	0	0	1,380	1,200	0	20,920	2,120	3,456
IDAHO OPS OFFICE	9,301	12,994	11,420	0	0	0	267	456	0	9,034	12,538	11,420
NEVADA OPS OFFICE	269,591	255,157	235,865	38,565	38,490	38,165	200,481	183,122	163,525	30,545	33,545	34,175
OAK RIDGE OPS OFFICE												
Oak Ridge Operations Office	18,750	15,850	14,935	10,750	9,300	10,700	370	0	0	7,630	6,550	4,235
Oak Ridge Y-12	371,706	410,040	376,545	0	0	0	29,777	18,365	5,930	341,929	391,675	370,615
OR Science & Technology Institute	946	1,367	1,354	0	0	0	0	10	0	946	1,357	1,354
Oak Ridge National Laboratory	10,274	10,243	12,243	0	0	0	421	600	300	9,853	9,643	11,943
SUBTOTAL, OR	401,676	437,500	405,077	10,750	9,300	10,700	30,568	18,975	6,230	360,358	409,225	388,147

TOTAL WEAPONS ACTIVITIES FUNDING BY SITE

(Dollars in Thousands)

	TOTAL WEAPONS ACTIVITIES			Weapons Program Direction			Weapons Stockpile Stewardship			Weapons Stockpile Management		
	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997
OAKLAND OPERATIONS OFFICE												
General Atomics	10,245	11,359	10,900	0	0	0	10,245	11,359	10,900	0	0	0
Lawrence Berkeley Lab	0	0	0	0	0	0	0	0	0	0	0	0
Lawrence Livermore National Lab	370,672	439,877	387,192	0	0	0	340,124	404,731	342,492	30,548	35,146	44,700
Naval Research Laboratory	8,950	8,500	8,156	0	0	0	8,950	8,500	8,156	0	0	0
Oakland Operations Office	19,361	26,267	14,188	13,742	13,005	13,005	5,397	13,042	914	222	220	269
University of Rochester	20,900	20,275	20,295	0	0	0	20,900	20,275	20,295	0	0	0
SUBTOTAL, OAK	430,128	506,278	440,731	13,742	13,005	13,005	385,616	457,907	382,757	30,770	35,366	44,969
OHIO FIELD OFFICE	6,955	5,120	22,533	0	0	0	0	0	0	6,955	5,120	22,533
RICHLAND OPS OFFICE												
Pacific Northwest Laboratory	3,000	5,330	3,000	0	0	0	3,000	0	0	0	5,330	3,000
Richland Operations Office	21,631	21,054	20,899	0	0	0	0	0	0	21,631	21,054	20,899
SUBTOTAL, RL	24,631	26,384	23,899	0	0	0	3,000	0	0	21,631	26,384	23,899
RF FIELD OFFICE	52,380	46,524	48,000	0	0	0	790	524	0	51,590	46,000	48,000
SAVANNAH RIVER OPS												
Savannah River Operations Office	5,158	6,200	6,205	2,075	2,065	2,055	0	0	0	3,083	4,135	4,150
Savannah River Westinghouse	122,194	150,608	99,250	0	0	0	1,576	1,358	780	120,618	149,250	98,470
SUBTOTAL, SR	127,352	156,808	105,455	2,075	2,065	2,055	1,576	1,358	780	123,701	153,385	102,620
HEADQUARTERS	123,688	137,760	388,667	125,053	93,108	100,518	7,135	37,132	273,212	(8,500)	7,520	14,937
Streamlining Savings	0	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	3,359,763	3,666,982	3,710,002	365,242	326,933	334,404	1,407,520	1,495,969	1,576,767	1,587,001	1,844,080	1,798,831

STOCKPILE STEWARDSHIP
Federal Personnel Funding by Object Class
($ in Thousands)

		FY 1995		FY 1996		FY 1997
		Adjusted Appropriation	Comparable Appropriation	Adjusted Appropriation	Comparable Appropriation	Budget Request
Personnel Compensation:						
11.1	Full-Time Permanent	$ 11,743	$ 0	$ 12,317	$ 0	$ 0
11.5	Other Personnel Compensation	618	0	648	0	0
11.9	Total Personnel Compensation	$ 12,361	$ 0	$ 12,965	$ 0	$ 0
12.1	Civilian Personnel Benefits	2,466	0	3,167	0	0
21.0	Travel and Transportation of Persons	1,114	0	1,005	0	0
22.0	Transportation of Things	0	0	0	0	0
23.3	Rent, Communications, Utilities, & Misc Charges	0	0	0	0	0
24.0	Printing and Reproduction	0	0	0	0	0
25.1	Advisory and Assistance Services	37,795	0	31,084	0	0
25.2	Other Services	2,637	0	5,665	0	0
25.3	Purchases of Goods and Services from Government Accounts	0	0	0	0	0
25.4	Operation and Maintenance of Facilities	1,295,681	1,240,071	1,290,229	1,290,209	1,274,859
26.0	Supplies and Materials	0	0	0	0	0
31.0	Equipment	82,320	82,320	73,555	73,555	70,446
32.0	Land and Structures	85,129	85,129	132,205	132,205	231,462
	TOTAL STOCKPILE STEWARDSHIP	$ 1,519,503	$ 1,407,520	$ 1,549,875	$ 1,495,969	$ 1,576,767

STOCKPILE MANAGEMENT
Federal Personnel Funding by Object Class
($ in Thousands)

	FY 1995		FY 1996		FY 1997
	Adjusted Appropriation	Comparable Appropriation	Adjusted Appropriation	Comparable Appropriation	Budget Request
Personnel Compensation:					
11.1 Full-Time Permanent	$ 52,617	$ 0	$ 54,471	$ 0	$ 0
11.5 Other Personnel Compensation	2,826	0	2,914	0	0
11.9 Total Personnel Compensation	$ 55,443	$ 0	$ 57,385	$ 0	$ 0
12.1 Civilian Personnel Benefits	12,514	0	12,832	0	0
21.0 Travel and Transportation of Persons	10,617	0	11,085	0	0
22.0 Transportation of Things	0	0	0	0	0
23.3 Rent, Communications, Utilities, & Misc Charges	0	0	0	0	0
24.0 Printing and Reproduction	0	0	0	0	0
25.1 Advisory and Assistance Services	89,614	5,235	70,935	4,550	4,550
25.2 Other Services	9,112	0	14,049	0	0
25.3 Purchases of Goods and Services from Government Accounts	0	0	0	0	0
25.4 Operation and Maintenance of Facilities	1,378,619	1,445,326	1,682,275	1,682,275	1,662,247
26.0 Supplies and Materials	210	0	367	0	0
31.0 Equipment	28,780	28,780	33,290	33,290	28,948
32.0 Land and Structure	107,660	107,660	123,965	123,965	103,086
TOTAL STOCKPILE MANAGEMENT	$ 1,692,569	$ 1,587,001	$ 2,006,183	$ 1,844,080	$ 1,798,831

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
($ in Thousands)

		FY 1995		FY 1996		FY 1997
		Adjusted Appropriation	Comparable Appropriation	Adjusted Appropriation	Comparable Appropriation	Budget Request
Personnel Compensation:						
11.1	Full-Time Permanent	$ 55,717	$ 120,077	$ 55,783	$ 122,349	$ 122,239
11.5	Other Personnel Compensation	3,016	6,460	3,023	6,573	6,574
11.9	Total Personnel Compensation	$ 58,733	$ 126,537	$ 58,806	$ 128,922	$ 128,813
12.1	Civilian Personnel Benefits	12,753	27,733	12,870	28,244	32,424
21.0	Travel and Transportation of Persons	5,138	16,869	4,932	17,001	15,504
22.0	Transportation of Things	319	319	367	367	343
23.3	Rent, Communications, Utilities, & Misc Charges	10,685	11,393	7,556	10,878	11,149
24.0	Printing and Reproduction	312	626	297	707	734
25.1	Advisory and Assistance Services	11,856	121,352	11,049	98,130	98,130
25.2	Other Services	37,519	49,864	14,207	31,450	36,156
25.3	Purchases of Goods and Services from Government Accounts	101	101	101	101	101
25.4	Operation and Maintenance of Facilities	3,547	8,933	3,743	9,496	9,545
26.0	Supplies and Materials	755	1,161	685	1,250	1,110
31.0	Equipment	354	354	387	387	395
32.0	Land and Structure					
	Subtotal	$ 142,072	$ 365,242	$ 115,000	$ 326,933	$ 334,404
	Office of Emergency Management	17,336	0	0	0	0
	Total, Program Direction	$ 159,408	$ 365,242	$ 115,000	$ 326,933	$ 334,404

FY 1997 CONGRESSIONAL BUDGET REQUEST
Defense Programs Federal Staffing
By Site

	FY 1995	FY 1996	FY 1997
Headquarters	366	352	311
Albuquerque	956	930	879
Transportation Safeguards	376	361	355
Nevada	307	309	285
Oak Ridge	77	72	69
Oakland	87	84	80
Savannah River	8	18	18
TOTAL FTE'S	2,177	2,126	1,997

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
FY 1995
($ in Thousands)

	Total	Headquarters	Albuquerque	Transportation Safeguards-AL	Nevada	Oak Ridge	Oakland	Savannah River
Personnel Compensation:								
11.1 Full-Time Permanent	120,077	27,625	48,763	18,634	15,569	3,829	5,163	494
11.5 Other Personnel Compensation	6,460	1,595	2,566	981	819	201	272	26
11.9 Total Personnel Compensation	126,537	29,220	51,329	19,615	16,388	4,030	5,435	520
12.1 Civilian Personnel Benefits	27,733	7,390	10,266	4,905	3,265	650	1,182	75
21.0 Travel and Transportation of Persons	16,869	4,181	7,061	3,100	1,041	600	836	50
22.0 Transportation of Things	319	0	280	0	25	0	14	0
23.3 Rent, Communications, Utilities, & Misc Charges	11,393	5,708	3,565	0	1,445	0	675	0
24.0 Printing and Reproduction	626	325	149	0	100	0	52	0
25.1 Advisory and Assistance Services	121,352	48,765	54,285	0	15,422	1,363	1,035	482
25.2 Other Services	49,864	26,547	14,077	210	200	3,897	3,985	948
25.3 Purchases of Goods and Services from Government Accounts	101	0	100	0	1	0	0	0
25.4 Operation and Maintenance of Facilities	8,933	2,471	6,115	0	347	0	0	0
26.0 Supplies and Materials	1,161	196	0	0	331	210	424	0
31.0 Equipment	354	250	0	0	0	0	104	0
TOTAL WEAPONS PROGRAM DIRECTION	365,242	125,053	147,227	27,830	38,565	10,750	13,742	2,075
FTE's	2,177	366	956	376	307	77	87	8

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
FY 1996
($ in Thousands)

	Total	Headquarters	Albuquerque	Transportation Safeguards-AL	Nevada	Oak Ridge	Oakland	Savannah River
Personnel Compensation:								
11.1 Full-Time Permanent	122,349	27,605	49,334	19,048	16,297	3,724	5,184	1,157
11.5 Other Personnel Compensation	6,573	1,588	2,596	1,002	857	195	274	61
11.9 Total Personnel Compensation	128,922	29,193	51,930	20,050	17,154	3,919	5,458	1,218
12.1 Civilian Personnel Benefits	28,244	7,438	10,386	5,010	3,418	632	1,187	173
21.0 Travel and Transportation of Persons	17,001	3,989	7,248	3,410	1,002	560	717	75
22.0 Transportation of Things	367	0	285	0	26	0	56	0
23.3 Rent, Communications, Utilities, & Misc Charges	10,878	4,718	3,700	0	2,135	0	325	0
24.0 Printing and Reproduction	707	330	140	0	187	0	50	0
25.1 Advisory and Assistance Services	98,130	34,788	47,205	0	13,650	1,185	900	402
25.2 Other Services	31,450	9,700	14,501	225	315	2,637	3,875	197
25.3 Purchases of Goods and Services from Government Accounts	101	0	100	0	1	0	0	0
25.4 Operation and Maintenance of Facilities	9,496	2,504	6,775	0	217	0	0	0
26.0 Supplies and Materials	1,250	198	0	0	385	367	300	0
31.0 Equipment	387	250	0	0	0	0	137	0
TOTAL WEAPONS PROGRAM DIRECTION	326,933	93,108	142,270	28,695	38,490	9,300	13,005	2,065
FTE's	2,126	352	930	361	309	72	84	18

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
FY 1997
($ in Thousands)

	Total	Headquarters	Albuquerque	Transportation Safeguards-AL	Nevada	Oak Ridge	Oakland	Savannah River
Personnel Compensation:								
11.1 Full-Time Permanent	122,239	27,405	48,494	20,657	15,633	3,712	5,135	1,203
11.5 Other Personnel Compensation	6,574	1,587	2,551	1,087	822	194	270	63
11.9 Total Personnel Compensation	128,813	28,992	51,045	21,744	16,455	3,906	5,405	1,266
12.1 Civilian Personnel Benefits	32,424	10,461	11,709	4,292	3,878	630	1,275	179
21.0 Travel and Transportation of Persons	15,504	3,700	6,007	3,455	1,018	500	749	75
22.0 Transportation of Things	343	0	295	0	27	0	21	0
23.3 Rent, Communications, Utilities, & Misc Charges	11,149	4,764	3,850	0	2,199	0	336	0
24.0 Printing and Reproduction	734	349	140	0	193	0	52	0
25.1 Advisory and Assistance Services	98,130	34,788	47,205	0	13,650	1,185	900	402
25.2 Other Services	36,156	14,330	13,124	240	300	4,209	3,820	133
25.3 Purchases of Goods and Services from Government Accounts	101	0	100	0	1	0	0	0
25.4 Operation and Maintenance of Facilities	9,545	2,666	6,755	0	124	0	0	0
26.0 Supplies and Materials	1,110	211	0	0	320	270	309	0
31.0 Equipment	395	257	0	0	0	0	138	0
TOTAL WEAPONS PROGRAM DIRECTION	334,404	100,518	140,230	29,731	38,165	10,700	13,005	2,055
FTE's	1,997	311	879	355	285	69	80	18

WEAPONS ACTIVITIES

FY 1997 CONGRESSIONAL BUDGET REQUEST

CONTRACTOR EMPLOYMENT TABLE

	TOTAL WEAPONS ACTIVITIES			Weapons Stockpile Stewardship			Weapons Stockpile Management			Ref.
	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997	Notes
ALBUQUERQUE OPERATIONS OFFICE										
Kansas City Plant	2,984	2,864	2,624	46	35	10	2,938	2,829	2,614	
Los Alamos National Laboratory	3,143	3,287	3,195	2,090	2,092	2,000	1,053	1,195	1,195	
Pantex Plant	3,007	3,152	3,019	0	0	0	3,007	3,152	3,019	
Pinellas Plant	508	5	0	6	0	0	502	5	0	
Sandia National Laboratories	4,160	4,187	4,048	2,743	2,700	2,600	1,417	1,487	1,448	
SUBTOTAL, AL	13,802	13,495	12,886	4,885	4,827	4,610	8,917	8,668	8,276	
CHICAGO OPERATIONS OFFICE										
Argonne National Laboratory	14	12	10	8	6	4	6	6	6	
Brookhaven National Laboratory	26	20	15	1	0	0	25	20	15	
SUBTOTAL, CH	40	32	25	9	6	4	31	26	21	
IDAHO OPERATIONS OFFICE	14	13	13	4	3	3	10	10	10	
NEVADA OPERATIONS OFFICE	2,403	1,794	1,769	2,153	1,582	1,582	250	212	187	
OAK RIDGE OPERATIONS OFFICE										
Oak Ridge Operations Other	56	67	67	6	2	2	50	65	65	
Oak Ridge Y-12	4,416	3,517	3,467	153	100	50	4,263	3,417	3,417	
ORISE	50	34	34	0	0	0	50	34	34	
SUBTOTAL, OR	4,522	3,618	3,568	159	102	52	4,363	3,516	3,516	

WEAPONS ACTIVITIES
FY 1997 CONGRESSIONAL BUDGET REQUEST
CONTRACTOR EMPLOYMENT TABLE

	TOTAL WEAPONS ACTIVITIES			Weapons Stockpile Stewardship			Weapons Stockpile Management			Ref.
	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997	FY 1995	FY 1996	FY 1997	Notes
OAKLAND OPERATIONS OFFICE										
Lawrence Livermore National Laboratory	3,212	3,319	3,309	3,049	3,100	3,100	163	219	209	
OHIO OPERATIONS (Mound Plant)	678	3	0	0	0	0	678	3	0	
RICHLAND OPERATIONS OFFICE										
Westinghouse Hanford	208	203	194	0	0	0	208	203	194	
Pacific Northwest Lab - Battelle	30	30	25	0	0	0	30	30	25	
SUBTOTAL, RL	238	233	219	0	0	0	238	233	219	
ROCKY FLATS OPERATIONS OFFICE	540	500	475	15	0	0	525	500	475	
SAVANNAH RIVER OPERATIONS OFFICE	1,526	1,301	1,011	22	21	16	1,504	1,280	995	Note A
TOTAL, WEAPONS ACTIVITIES	**26,975**	**24,308**	**23,275**	**10,296**	**9,641**	**9,367**	**16,679**	**14,667**	**13,908**	

FY 1997 does not show potential impact of National Ignition Facility site selection.

Note A: Reflects unofficial employment estimate outside of DP M&O database.

SOURCE: Defense Programs M&O Employment Database for the Month Ending January 1996.
Excludes Subcontractors, Worker & Community Transition and Materials Support Personnel.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS ACTIVITIES
(Tabular dollars in thousands, Narrative in whole dollars)

WEAPONS STOCKPILE STEWARDSHIP
PROGRAM MISSION

NOTE: Detailed site funding for Stockpile Stewardship is provided in the Defense Programs Executive Budget Summary.
Federal Support activities previously included in Weapons Stockpile Stewardship have been transferred to Weapons Program Direction per Congressional direction.
Construction line item details follow the Stockpile Stewardship budget narrative.

The Weapons Stockpile Stewardship Program was established for the express purpose of ensuring confidence in the Nation's nuclear deterrent. It provides direct support to the stockpile and maintains the infrastructure and technical capabilities for research, design, development, production, and maintenance of the stockpile. At the most fundamental level, Weapons Stockpile Stewardship rests on the judgment and skills of experienced civilian and military specialists, supported by appropriate experimental and computational resources, and the preservation of their knowledge base. Experience has shown that weapon systems deteriorate over time and will require modifications to extend their operational lifetime. This program is planned to enable the DOE to respond to these changes and at the same time maintain confidence in the stockpile.

GOAL:

This program will ensure, in the most cost efficient manner possible, confidence in the safety, reliability, and performance of the stockpile without nuclear testing. This will be achieved through a vigorous science-based stockpile stewardship program, consistent with the President's national security policy of negotiating a zero-yield Comprehensive Test Ban Treaty.

There are several objectives associated with maintaining confidence in the stockpile in the long term, and these provide the focus for current research and development activities in the Weapons Stockpile Stewardship Program.

- A new production capability is required to replace components and warheads for safety or reliability reasons, or to replace those destroyed in surveillance testing or other stockpile stewardship activities. These replacement units will require certification and DoD acceptance, without underground nuclear testing, before entry into the stockpile.
- The infrastructure and competency of technical personnel must be maintained through meaningful and challenging work relevant to stockpile stewardship and management.
- A meaningful experimental program must be supported at the Nevada Test Site to provide data to enhance the stewardship program, maintain necessary nuclear test skills and operations, and ensure preventive maintenance of test infrastructure and equipment.

During FY 1995, implementation of the Weapons Stockpile Stewardship program was begun with an emphasis on addressing the issues listed above. Accomplishments of particular interest included:

- Conducted weapons systems stockpile surveillance testing.
- Completed transfer of pit surveillance mission from Rocky Flats to Los Alamos.
- Expanded programs to capture and preserve the enduring weapons and weapon effects knowledge base.
- Completed Key Decision-1 (KD-1) on the National Ignition Facility (NIF) and Atlas pulsed-power facility.
- Continued studies of aging processes in weapon materials and components.
- Rehabilitated the Nevada Test Site tunnel complexes to support experiments that maintain the capability to resume underground nuclear testing.

PROGRAM MISSION - STOCKPILE STEWARDSHIP (Continued)

The **FY 1996** program will continue the ongoing activities required to maintain the stockpile and preserve the research and technology base while focusing on three new initiatives identified by the DOE as essential for a viable science-based Stockpile Stewardship Program. They are:

- Use first year funding for the Accelerated Strategic Computing Initiative (ASCI) to initiate two commercial partnerships in FY 1996 and to prepare a third for implementation in FY 1997 to create the leading-edge computational modeling and simulation capabilities that are essential for providing information to maintain the safety, reliability, and performance of the stockpile in the absence of underground nuclear testing.
- Proceed with the National Ignition Facility project following Congressional authorization and a determination by Secretary O'Leary that the project supports the nation's nuclear nonproliferation objectives.
- Begin the transition of the Los Alamos Neutron Science Center (LANSCE), which will provide new technologies for surveillance of stockpiled warheads, from Energy Research to Defense Programs.

FY 1997 will be a year of program stabilization in which we begin to look forward to what needs to be done, as opposed to the last four to five years during which the focus has been on responding to major policy shifts, such as the implementation of the moratorium on underground nuclear testing and cessation of design and production. The primary focus of activity will be on implementation of the Stockpile Stewardship and Management Plan, currently being drafted, which provides a highly integrated program plan consistent with current policy guidance.

- The stabilization of the program is confirmed by the one major programmatic shift in the FY 1997 budget request. Evolution of the program requirements of the post-cold war, post-underground nuclear testing environment of the weapons stockpile stewardship programs allows the rapid transition of the **Technology Transfer** program from private industry driven cooperative research and development agreements to Stockpile Stewardship driven or program specific projects. As such, it is not expected that any major new partnerships will be initiated in FY 1997; funding is requested mainly to support ongoing agreements. It is expected that over the next few years, the Technology Transfer line of the Stockpile Stewardship budget will quickly decrease in size as ongoing agreements are completed, leaving only a small ongoing line to fund agreements that exercise the unique capabilities of the Defense Programs laboratories and plants and are important to meeting the programmatic goals of the Department.

- Major funding changes from FY 1996 provide second year funding for the FY 1996 Stockpile Stewardship initiatives which were implemented to initiate the science based stockpile stewardship program necessary to insure continuing confidence in the nuclear weapons stockpile without the use of underground nuclear testing. The **National Ignition Facility** is fully supported with total project cost funding of $191 million; major FY 1997 activity includes beginning the procurement of long-lead items of equipment, process and technology development activities with the laser optics industry, and site-specific engineering and design activities. The **Accelerated Strategic Computing Initiative** grows from startup funding in FY 1996 of $85 million to a FY 1997 level of $121.6 million. FY 1997 ASCI funding will continue three commercial partnerships and significantly increase support of applications development. Second year construction funding is also provided for the FY 1996 new starts **Contained Firing Facility** at Lawrence Livermore National Laboratory, the **Processing and Environmental Technology Laboratory** at Sandia National Laboratories, and **ATLAS** at Los Alamos National Laboratory.

PROGRAM MISSION - STOCKPILE STEWARDSHIP (Continued)

PERFORMANCE MEASURES:

Specific performance measures for Stockpile Stewardship are included in the program element writeups on the following pages. Significant overall performance measures are:
- Select site for the National Ignition Facility and obtain official approval to proceed with physical construction of the facility.
- Have in place and implement three advanced computing partnerships.
- Proceed with an aggressive research and development program in advanced hydrodynamics.
- Support the first Life Extension Program as agreed to with the Department of Defense and outlined in the Stockpile Stewardship and Management Plan.
- Continue to transition the Technology Transfer program by utilizing industry partnerships to cost share the development of the best, most efficient, and most affordable technologies needed to meet the objectives of the Stockpile Stewardship and Management programs.

FACILITY OPERATIONS:

STOCKPILE STEWARDSHIP SITES: Weapons Stockpile Stewardship activities are conducted predominantly at the three defense laboratories, Lawrence Livermore National Laboratory in California and Los Alamos and Sandia National Laboratories in New Mexico, and at the Nevada Test Site. Funding is also provided to the University of Rochester, the Naval Research Laboratory, and General Atomics through the Inertial Confinement Fusion program and to various production sites including the Y-12 plant at Oak Ridge for Technology Transfer activities. Other miscellaneous locations are funded through the Weapons Stockpile Stewardship program as noted on the funding by location table included in the Weapons Activities Executive Summary.

Funding at the three laboratories and at the Nevada Test Site, locations at which Defense Programs acts as the Department's landlord, comprises the substantial majority of the funding available to support the research and development infrastructure. The R&D infrastructure is considerably more than the physical plant of the sites, providing the scientists and engineers and the basic and applied research base on which the health of the labs and the Test Site rest. That portion of R&D infrastructure represented by Weapons Stockpile Stewardship funded employment at the laboratories is stable going into FY 1997 with the successful implementation of the FY 1996 initiatives. This floor, or level of effort, of scientific based capability provides the ongoing technology and science resources required to insure that any Department question can be addressed by the best scientists and engineers using the most advanced sciences and technologies. This is of particular importance for the nuclear weapons stockpile activities of the Department, which is why Stockpile Stewardship funds it, but also provides the same capabilities for every other user of the laboratories and the Nevada Test Site.

Defense Programs oversees and coordinates site-wide environmental documentation activities at the three laboratories and the Nevada Test Site, as the Department's landlord, although funding is provided by all affected activities at each site. Currently, site-wide environmental impact statements (SWEIS) are underway at the Nevada Test Site and at the Los Alamos National Laboratory. The draft NTS SWEIS was provided to the public in February of this year, 1996, with the final document expected to be published later this summer. The schedule for the LANL SWEIS is to provide the public with a draft document this summer, with the final to be published late in calendar year 1996. During FY 1997 Defense Programs will conduct a five year review of the Lawrence Livermore National Laboratory SWEIS, completed in 1992, to determine if the document is current, requires revisions, or whether the site requires a new SWEIS. Defense Programs will also review ongoing and potential activities to determine the potential need for site-wide environmental documentation at the Sandia National Laboratories.

CONCEPTUAL DESIGN REPORTS and POST-CONCEPTUAL DESIGN ENGINEERING: During the budget request period, FY 1995-FY 1997, there are no Conceptual Design Reports (CDR) for new construction projects which will exceed $3 million in cost. The post-CDR engineering and design activities for the National Ignition Facility are being funded in FY 1995 and FY 1996 and will cost in excess of $6 million.

PROGRAM MISSION - STOCKPILE STEWARDSHIP (Continued)

BUDGET STRUCTURE

The Weapons Stockpile Stewardship budget request is organized in the following manner

- **SUMMARY LEVEL FUNDING DATA** is provided for all of Weapons Stockpile Stewardship followed by a funding table showing detail for capital equipment, general plant projects, and construction line items. A comparability crosswalk is provided showing adjustments to the FY 1995 and FY 1996 Weapons Stockpile Stewardship appropriations required principally to consolidate all Federal Support expenditures into the Weapons Program Direction decision unit. Funding by site and contractor employment by site are included in the Defense Programs Executive Budget Summary

- **CORE STOCKPILE STEWARDSHIP** supports the specific activities required for science-based stockpile stewardship through the maintenance of the physical and intellectual infrastructure at Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Sandia National Laboratories and the Nevada Test Site. Major program elements include Programs and Initiatives, Research and Advanced Technology, and Testing Capabilities and Readiness.

- **INERTIAL CONFINEMENT FUSION** is a research and advanced technology development effort directly supporting the Department's National Security mission in Stockpile Stewardship, the program also contributes to the DOE's missions in Science and Technology, Industrial Competitiveness, and Energy Research. The near-term goal of the program is the successful demonstration of a thermonuclear ignition and moderate fusion gain in a laboratory environment

- **TECHNOLOGY TRANSFER AND EDUCATION** directly share expertise and scientific development in the laboratories with the private sector. Technology Transfer strengthens the science and technology base through participation in cooperative, dual-benefit partnerships with private industry. Education initiatives support science education activities that exercise the unique capabilities of the laboratories and the Nevada Test Site in school settings ranging from kindergarten to graduate school.

- The funding request for **MARSHALL ISLANDS** has been moved to the Other Defense Activities appropriation.

WEAPONS STOCKPILE STEWARDSHIP
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-Program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Core Stockpile Stewardship					
Operations & Maintenance	$ 921,224 a,b	$ 1,078,403	$ (64,100) a,e,g	$ 1,014,303	$ 1,062,570
Construction Line Items	$ 76,629	$ 81,305	$ 1,000 g	$ 82,305	$ 88,337
Subtotal, Core Stockpile Stewardship	$ 997,853	$ 1,159,708	$ (63,100)	$ 1,096,608	$ 1,150,907
Inertial Confinement Fusion					
Operations & Maintenance	$ 176,113 a	$ 203,267	$ (306) a	$ 202,961	$ 234,560
Construction Line Items	$ 0	$ 37,400	$ 0	$ 37,400	$ 131,900
Subtotal, Inertial Confinement Fusion	$ 176,113	$ 240,667	$ (306)	$ 240,361	$ 366,460
Technology Transfer & Education					
Operations & Maintenance	$ 233,554 a	$ 160,000	$ (1,000) a	$ 159,000	$ 59,400
Subtotal, Technology Transfer & Education	$ 233,554	$ 160,000	$ (1,000)	$ 159,000	$ 59,400
Marshall Islands & Dose Reconstruction	$ 0 c	$ 6,800	$ (6,800) c	$ 0	$ 0
Streamlining Savings, Undistributed	$ 0	$ (18,300) e	$ 18,300	$ 0	$ 0
Subtotal, Weapons Stockpile Stewardship	$ 1,407,520	$ 1,548,875	$ (52,906)	$ 1,495,969	$ 1,576,767
Adjustments	$ (79,725) d	$ (21,500) f	$ (51,766) g,h	$ (73,266)	$ 0
TOTAL, NEW OBLIGATIONAL AUTHORITY	$ 1,327,795	$ 1,527,375	$ (104,672)	$ 1,422,703	$ 1,576,767
Summary					
Core Stockpile Stewardship	$ 997,853 a,b	$ 1,159,708	$ (63,100) a,e,g	$ 1,096,608	$ 1,150,907
Inertial Confinement Fusion	176,113 a	240,667	(306) a	240,361	366,460
Technology Transfer & Education	233,554 a	160,000	(1,000) a	159,000	59,400
Marshall Islands & Dose Reconstruction	0 c	6,800	(6,800) c	0	0
Streamlining Savings, Undistributed	0	(18,300) e	18,300	0	0
Total, Stockpile Stewardship	$ 1,407,520	$ 1,548,875	$ (52,906)	$ 1,495,969	$ 1,576,767
Adjustments	(79,725) d	(21,500) f	(51,766) g,h	(73,266)	0
Total, New Obligational Authority	$ 1,327,795	$ 1,527,375	$ (104,672)	$ 1,422,703	$ 1,576,767

Public Law Authorization

National Defense Authorization Act for FY 1996. Public Law 104-106--February 10, 1996.

Notes

a/ Reflects transfer of federal support funding to Weapons Program Direction, per Congressional direction. Detail provided in comparability crosswalks following the Funding Schedule.
b/ Reflects effect of FY 1995 travel rescission of -$146,465 (PL 104-19)
c/ Reflects FY 1997 transfer of Marshall Islands & Dose Reconstruction to Office of Environment, Safety & Health under the Other Defense Activities Appropriation.
d/ Use of prior year balances.
e/ Reflects Stockpile Stewardship allocation of bottom line Contractor Streamlining Savings ($18,300,000).
f/ Requested use of prior year balances.
g/ Reflects internal reprogramming of $1,000,000 in prior year balances from construction line item 88-D-105, Special Nuclear Materials Laboratory Replacement to line item 95-D-102, CMR Upgrades Project.
h/ Reflects Stockpile Stewardship allocation of bottom line increased use of prior year balances ($50,766,000), per FY 1996 appropriation.

WEAPONS STOCKPILE STEWARDSHIP
CORE STOCKPILE STEWARDSHIP
(Dollars in Thousands)

Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
CORE STOCKPILE STEWARDSHIP					
PROGRAMS & INITIATIVES					
DEVELOPMENT ACTIVITIES					
Stockpile Readiness Program	45,481	45,431	44,855	(576)	-1%
Enduring Stockpile Program	63,746	64,844	62,875	(1,969)	-3%
Future Stockpile Program	24,801	30,939	30,145	(794)	-3%
Stockpile Reduction Program	10,537	10,249	10,035	(214)	-2%
Subtotal, DEVELOPMENT ACTIVITIES	$ 144,565	$ 151,463	$ 147,910	$ (3,553)	-2%
EXPERIMENTAL ACTIVITIES					
Archiving	13,378	15,866	15,735	(131)	-1%
Nuclear Component Assessment	38,600	35,417	34,415	(1,002)	-3%
Nonnuclear Componenet Assessment	3,900	4,007	4,000	(7)	-0%
Subtotal, EXPERIMENTAL ACTIVITIES	$ 55,878	$ 55,290	$ 54,150	$ (1,140)	-2%
ACCELERATED STRATEGIC COMPUTING INITIATIVE	$ 0	$ 85,000	$ 121,615	$ 36,615	43%
SPECIAL PROJECTS					
Weapons Transportation Safeguards Systems	7,001	4,000	0	(4,000)	-100%
Extraordinary ES&H Site Remediation	7,700	3,900	2,100	(1,800)	-46%
Joint DoD/DOE Munitions Technology Development	13,403	14,496	14,880	384	3%
Federal Support	0	0	0	0	0%
Other Activities	7,094	7,969	2,550	(5,419)	-68%
Subtotal, SPECIAL PROJECTS	$ 35,198	$ 30,365	$ 19,530	$ (10,835)	-36%
THREAT ASSESSMENT & TREATY IMPLEMENTATION	$ 20,092	$ 18,637	$ 18,180	$ (457)	-2%
Subtotal, PROGRAMS & INITIATIVES	$ 255,733	$ 340,755	$ 361,385	$ 20,630	6%

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Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
CORE STOCKPILE STEWARDSHIP (Continued)					
RESEARCH & ADVANCED TECHNOLOGY					
DESIGN ASSESSMENT SCIENCE & TECHNOLOGY					
Conceptual Design and Assessment	33,953	31,339	35,455	4,116	13%
Physics	120,207	120,548	125,905	5,357	4%
Los Alamos Neutron Science Center	7,000	35,000	34,160	(840)	-2%
Computation and Modeling	99,129	90,573	120,145	29,572	33%
Subtotal, DESIGN ASSESSMENT SCIENCE & TECHNOLO	$ 260,289	$ 277,460	$ 315,665	$ 38,205	14%
SYSTEMS COMPONENTS SCIENCE & TECHNOLOGY					
Systems Engineering	60,550	60,939	60,800	(139)	-0%
Electronics, Photonics, Sensors & Mechanical Comp's	36,222	33,223	30,410	(2,813)	-8%
Advanced Manufacturing	12,792	12,305	12,535	230	2%
Subtotal, SYSTEMS COMPONENTS SCI & TECHNOLOGY	$ 109,564	$ 106,467	$ 103,745	$ (2,722)	-3%
CHEMISTRY AND MATERIALS SCIENCE & TECHNOLOGY					
Chemistry and Materials	15,880	15,175	14,915	(260)	-2%
High Explosives	6,240	6,336	6,265	(71)	-1%
Special Nuclear Materials	27,511	28,361	27,380	(981)	-3%
Tritium	9,000	6,250	6,120	(130)	-2%
Subtotal, CHEMISTRY AND MATERIALS SCI & TECH	$ 58,631	$ 56,122	$ 54,680	$ (1,442)	-3%
Subtotal, RESEARCH & ADVANCED TECHNOLOGY	$ 428,484	$ 440,049	$ 474,090	$ 34,041	8%
TESTING CAPABILITIES & READINESS	$ 180,687	$ 167,444	$ 162,525	$ (4,919)	-3%
LABORATORY CAPITAL EQUIPMENT	$ 51,820	$ 58,555	$ 57,250	$ (1,305)	-2%
LABORATORY GENERAL PLANT PROJECTS	$ 4,500	$ 7,500	$ 7,320	$ (180)	-2%
Subtotal, OPERATIONS & MAINTENANCE	$ 921,224	$ 1,014,303	$ 1,062,570	$ 48,267	5%
CONSTRUCTION LINE ITEMS	$ 76,629	$ 82,305	$ 88,337	$ 6,032	7%
TOTAL, CORE STOCKPILE STEWARDSHIP	$ 997,853	$ 1,096,608	$ 1,150,907	$ 54,299	5%

WEAPONS STOCKPILE STEWARDSHIP
INERTIAL CONFINEMENT FUSION and TECHNOLOGY TRANSFER & EDUCATION
(Dollars in Thousands)

Funding Schedule (cont.):

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
INERTIAL CONFINEMENT FUSION					
Operations & Maintenance					
Indirect Drive with Glass Laser	$ 98,175	$ 104,514	$ 103,408	$ (1,106)	-1%
National Ignition Facility - Other Project Costs	6,000	23,600	59,200	35,600	151%
Direct Drive with Glass Laser	20,765	20,100	20,295	195	1%
KrF Laser	9,620	8,500	8,156	(344)	-4%
Light Ion Beams	26,200	27,481	26,369	(1,112)	-4%
Capsule Fabrication and Development	14,425	15,823	15,184	(639)	-4%
Other	928	2,943	1,948	(995)	-34%
TOTAL, OPERATIONS & MAINTENANCE	$ 176,113	$ 202,961	$ 234,560	$ 31,599	16%
Construction					
96-D-111, National Ignition Facility	$ 0	$ 37,400	$ 131,900	$ 94,500	253%
TOTAL, INERTIAL CONFINEMENT FUSION	$ 176,113	$ 240,361	$ 366,460	$ 126,099	52%
TECHNOLOGY TRANSFER & EDUCATION					
Technology Transfer	$ 213,554	$ 149,000	$ 49,400	$ (99,600)	-67%
Education	$ 20,000	$ 10,000	$ 10,000	$ 0	0%
TOTAL, TECH TRANSFER & EDUCATION	$ 233,554	$ 159,000	$ 59,400	$ (99,600)	-63%
TOTAL, WEAPONS STOCKPILE STEWARDSHIP	$ 1,407,520	$ 1,495,969	$ 1,576,767	$ 80,798	5%

WEAPONS STOCKPILE STEWARDSHIP

CAPITAL EQUIPMENT, GENERAL PLANT PROJECTS, AND CONSTRUCTION SUMMARY

(Detail and Crosscut Dollars in Thousands)

	Prior Years	Fiscal Year 1995	Fiscal Year 1996	Fiscal Year 1997	$ CHG	% CHG
OPERATIONS & MAINTENANCE						
Other (Line Item) Project Costs						
Conceptual Design Costs in Excess of $3 million						
96-D-111, National Ignition Facility	$ 12,000	$ 0	$ 250	$ 150	$	
1/ "Bridge" Costs in Excess of $3 million & Other OPC						
96-D-111, National Ignition Facility	200	6,000	23,350	59,050	35,700	60%
2/ OPC, not included above, for FY 1997 Requested Line Items	14,368	3,510	4,065	3,387	(678)	-20%
Capital Equipment						
Capital Equipment - Core Stockpile Stewardship						
Basic Capital Equipment						
Testing Capabilities & Readiness		$ 15,000	$ 8,000	$ 6,000		
Other Basic Equipment		$ 32,790	$ 38,555	$ 29,150		
Major Items of Equipment		0	0			
Very Large-Scale Integrated Circuit Test System, SNL				3,100		
Automated Data Processing Equipment						
High Speed Communications, LLNL		3,000				
Supercomputer, LANL		10,000	10,000	7,500		
Mass Storage Upgrade, LANL		1,700		1,500		
Network Upgrade, LANL		1,330		1,000		
Supercomputer Upgrade, SNL		3,000				
Fast Genral Purpose Computer, LLNL			2,000			
Meiko CS-2 Tech Insertion, LLNL			3,000			
Cray J-90 SMP Upgrade, LLNL			2,000			
Object Data Archive I, LLNL			3,000			
Massively Parallel Processor MPP I (SCF), LLNL				4,000		
Massively Parallel Processor MPP I (Fast), LLNL				4,000		
Machine Room Network, LLNL				2,000		
Supercomputer 97, SNL				5,000		
Capital Equipment - Inertial Confinement Fusion		9,500	7,000	7,196		
Capital Equipment - Technology Transfer and Education		6,000	0	0		
Subtotal, Capital Equipment		$ 82,320	$ 73,555	$ 70,446	$ (3,109)	-4%
General Plant Projects						
Testing Capabilities & Readiness		$ 4,000	$ 5,000	$ 3,905	$ (1,095)	-28%
Other General Plant Projects		$ 4,500	$ 7,500	$ 7,320	$ (180)	-2%
Subtotal, General Plant Projects		$ 8,500	$ 12,500	$ 11,225	$ (1,275)	-11%

Detail and Crosscut Dollars in Thousands (continued)

CONSTRUCTION PROJECT SUMMARY

Project Number	Project Title	TEC	Previous Approp	FY 1995 Approp	FY 1996 Approp	FY 1997 Request	Unapprop. Balance
CORE STOCKPILE STEWARDSHIP							
97-D-102	Dual-Axis Radiographic Hydrotest Facility, LANL	$ 105,700	$ 47,905	$ 17,000	$ 16,495	$ 0	$ 24,300
96-D-105	Contained Firing Facility Addition, LLNL	49,700			6,600	17,100	26,000
96-D-104	Processing & Environmental Technology Laboratory, SNL	45,900			1,800	14,100	30,000
96-D-103	ATLAS, LANL	43,300			8,400	15,100	19,800
96-D-102	S. Stewardship Facilities Revitalization, Phase VI, Various Locations						
	Water Well Replacements, LANL	16,800			1,000	10,200	5,600
	Fire Protection Improvements, LANL	16,900			1,520	5,050	10,330
	Real Property Protection (Roofs), LLNL	7,810			0	3,000	4,810
	138 kV Substation Modernization, NTS	28,149			0	1,000	27,149
	Subtotal, S. Stewardship Facilities Revitalization, Phase VI	69,659	0	0	2,520	19,250	47,889
95-D-102	CMR Upgrades Project, LANL	174,100	38,500	3,300	10,940	15,000	106,360
94-D-102	NWRD&T Facilities Revitalization, Phase V, Various Locations						
	Power Systems Modernization, SNL	36,987	4,000	13,000	12,200	7,787	0
93-D-102	Nevada Support Facility, NVO	38,650	6,000	17,000	15,650	0	0
92-D-102	NWRD&T Facilities Revitalization, Phase IV, VL	91,138	66,289	17,449	0	0	7,400
90-D-102	NWRD&T Facilities Revitalization, Phase III, Various Locations						
	Site 300 Revitilization, LLNL	27,400	21,200	900	5,300	0	0
	Electrical Power Systems Upgrades, LLNL	28,386	28,200	0	186	0	0
	Fiber Optic Backbone, LLNL	1,802	1,088	0	714	0	0
	Technology Support Center, SNL	30,000	26,000	4,000	0	0	0
	Fully Funded Subprojects	16,821	16,821	0	0	0	0
	Subtotal, NWRD&T Facilities Revitalization, Phase III, Various	104,409	93,309	4,900	6,200	0	0
88-D-106	NWRD&T Facilities Revitalization, Phase II, Various Locations						
	Dormitories, NTS	2,029	2,029	0	0	0	0
	Defense Programs Research Facility, LLNL	72,640	67,160	3,980	1,500	0	0
	Fully Funded Subprojects	229,290	229,290	0	0	0	0
	Subtotal, NWRD&T Facilities Revitalization, Phase II, Various	303,959	298,479	3,980	1,500	0	0
TOTAL, CORE STOCKPILE STEWARDSHIP		$ 1,063,502	$ 554,482	$ 76,629	$ 82,305	$ 88,337	$ 261,749
INERTIAL CONFINEMENT FUSION							
96-D-111	National Ignition Facility, TBD	$ 842,600	$	$	$ 37,400	$ 131,900	$ 673,300
TOTAL, WEAPONS STOCKPILE STEWARDSHIP		$ 1,906,102	$ 554,482	$ 76,629	$ 119,705	$ 220,237	$ 935,049

Detail and Crosscut Dollars in Thousands (continued)

FOOTNOTES

1/ "Bridge" funding (funding between completion of Conceptual Design Report and first year construction authorization) in excess of $3 million for line items requesting funding in FY 1997.

2/ Operating Project Costs for line items requesting funding in FY 1997 with a Conceptual Design Report that cost less than $3 million and which did not require "bridge" funding (funding between completion of CDR and first year construction authorization) in excess of $3 million.

3/ Previously included as a subproject within 88-D-106, NWRD&T Facilities Revitalization, Phase II.

4/ Includes $1 million internally reprogrammed from 88-D-105, Special Nuclear Material Laboratory Replacement.

WEAPONS STOCKPILE STEWARDSHIP
COMPARABILITY CROSSWALKS
(Dollars in Thousands)

FY 1995 APPROPRIATION to FY 1995 COMPARABLE APPROPRIATION

	FY 1995 Approp. (see note 2)	Procurement Reform Savings	Travel Recission (PL 104-19)	Transfer Marshall Islands (see note 3)	Transfer Federal Support (see note 4)	Subtotal Adjustments	FY 1995 Comparable Appropriation
Core Stockpile Stewardship							
Operations & Maintenance	$ 969,070	$ (926)	$ (147)	$ 0	$ (46,773)	$ (47,846)	$ 921,224
Construction Line Items	80,990	(4,361)				(4,361)	76,629
Subtotal, Core Stockpile Stewardship	$ 1,050,060	$ (5,287)	$ (147)	$ 0	$ (46,773)	$ (52,207)	$ 997,853
Inertial Confinement Fusion	$ 176,473	$ 0	$ 0	$ 0	$ (360)	$ (360)	$ 176,113
Technology Transfer & Education	$ 235,794	$	$	$	$ (2,240)	$ (2,240)	$ 233,554
Marshall Islands & Dose Reconstruction	$ 7,000	$	$	$ (7,000)	$	$ (7,000)	$ 0
TOTAL, Weapons Stockpile Stewardship	$ 1,469,327	$ (5,287)	$ (147)	$ (7,000)	$ (49,373)	$ (61,807)	$ 1,407,520
1/ Transfer of Emergency Response	55,610						
Total, RD&T Appropriation	$ 1,524,937						

FY 1996 APPROPRIATION to FY 1996 COMPARABLE ADJUSTED

	FY 1996 Approp.	Contractor Streamlining Savings	Internal Reprograming (see note 5)	Transfer Marshall Islands (see note 3)	Transfer Federal Support (see note 4)	Subtotal Adjustments	FY 1996 Comparable Appropriation
Core Stockpile Stewardship							
Operations & Maintenance	$ 1,078,403	$ (18,300)	$ 0	$ 0	$ (45,800)	$ (64,100)	$ 1,014,303
Construction Line Items	81,305		1,000			1,000	82,305
Subtotal, Core Stockpile Stewardship	$ 1,159,708	$ (18,300)	$ 1,000	$ 0	$ (45,800)	$ (63,100)	$ 1,096,608
Inertial Confinement Fusion							
Operations & Maintenance	203,267				(306)	(306)	202,961
Construction Line Items	37,400					0	37,400
Subtotal, Inertial Confinement Fusion	$ 240,667	$ 0	$ 0	$ 0	$ (306)	$ (306)	$ 240,361
Technology Transfer & Education	$ 160,000	$	$	$	$ (1,000)	$ (1,000)	$ 159,000
1/ Marshall Islands & Dose Reconstruction	$ 6,800	$	$	$ (6,800)	$	$ (6,800)	$ 0
Contractor Streamlining Savings	$ (18,300)	$ 18,300	$	$	$	$ 18,300	$ 0
TOTAL, Weapons Stockpile Stewardship	$ 1,548,875	$ 0	$ 1,000	$ (6,800)	$ (47,106)	$ (52,906)	$ 1,495,969

COMPARABILITY CROSSWALKS - WEAPONS STOCKPILE STEWARDSHIP (Cont'd)

Notes:

1/ Funding for Emergency Response assests appropriated in Weapons Stockpile Management in FY 1996.

2/ FY 1995 shown in the FY 1996 budget structure. FY 1995 funding was originally appropriated to the Weapons Research and Development and Weapons Testing decision units.

3/ Marshall Islands & Dose Reconstruction transferred to Office of Environment Safety and Health in FY 1997 under the Other Defense Activities Appropriation.

4/ Federal Support for Los Alamos Area Office, Kirtland Area Office, Albuquerque Operations Office and Headquarters transferred to Weapons Program Direction in FY 1997.

5/ FY 1996 Internal Reprogramming: $1,000,000 in prior year balances in construction line item 88-D-105, Special Nuclear Materials Laboratory, Los Alamos National Laboratory reprogrammed to 95-D-102, CMR Upgrades, LANL.

WEAPONS STOCKPILE STEWARDSHIP

CORE STOCKPILE STEWARDSHIP

NOTE: Summary funding data is provided following the Weapons Stockpile Stewardship Program Mission Statement.

The Core Stockpile Stewardship Program maintains a high level of confidence in the safety, reliability, and performance of the U.S. stockpile in the absence of underground nuclear testing. The program provides the physical and intellectual infrastructure required to meet the programmatic requirements of the science-based Stockpile Stewardship program. Primary locations of activity are the Lawrence Livermore, Los Alamos and Sandia National Laboratories and the Nevada Test Site. The Stockpile Stewardship and Management Plan, currently in draft, will provide the primary programmatic guidance for FY 1997. Other important planning documents include the Accelerated Strategic Computing Initiative program plan, and the developing advanced hydrodynamics program plan.

PROGRAM GOALS:

- Maintain a fully capable logistics and support infrastructure for the enduring stockpile;
- Maintain an effective stockpile surveillance and evaluation program, and enhance it to provide for preventive maintenance and to offset the lack of nuclear testing;
- Continue to provide and enhance the engineering and development capabilities, including computing and experimental simulation, required to refurbish and recertify the enduring stockpile;
- Maintain the capability to resume testing, if directed, and
- Retain the ability to develop and manufacture replacement designs

SIGNIFICANT CHANGES FROM FY 1996:

- Second year funding is provided for the Accelerated Strategic Computing Initiative	+$36.6 million
- Increased computational support required by the Stockpile Stewardship program	+$29.6 million
- Enhance the support of activities to investigate the potential of advanced facilities to replace underground nuclear testing.	+$ 9.5 million
- Continue FY 1996 Construction starts:	+$ 6.0 million
- Reprioritization of ongoing activities to support the above initiatives	- $27.5 million

BUDGET CONTENTS:

The Core Stockpile Stewardship program has five major funding categories

- **PROGRAMS & INITIATIVES** supports direct stockpile support activities and other discrete, high profile initiatives.
- **RESEARCH & ADVANCED TECHNOLOGY** supports long-term science and technology required for an ongoing stockpile requirements response capability.
- **TESTING CAPABILITIES AND READINESS** ensures the continuing availability of the experimental and infrastructure capabilities of the Nevada Test Site as well as maintaining, per Presidential direction, a readiness to resume underground nuclear testing.
- **LABORATORY CAPITAL EQUIPMENT and GENERAL PLANT PROJECTS** supports the maintenance of the physical infrastructure of the laboratories.
- **CONSTRUCTION LINE ITEMS** provides line item funding for infrastructure and programmatic construction projects.

CORE STOCKPILE STEWARDSHIP

PROGRAMS & INITIATIVES: Assures the ability to support the enduring stockpile; deal effectively with major redirection in the nuclear weapons program; assure the ability to design safer weapons systems using a coordinated inter-laboratory approach; provide the technical expertise, equipment, and facilities that provide essential data in support of nuclear weapons research and development, and stockpile support missions; and provide for enhanced nonproliferation activities.

Programmatic Categories include: **DEVELOPMENT ACTIVITIES, EXPERIMENTAL ACTIVITIES, ACCELERATED STRATEGIC COMPUTING INITIATIVE, SPECIAL PROJECTS,** and **THREAT ASSESSMENT & TREATY IMPLEMENTATION COSTS.**

PROGRAM GOALS:

- Support the evaluation, maintenance, improvement, and dismantlement of the current and enduring nuclear weapons stockpile;
- Support the retention and acquisition of experimental data on all aspects of weapons components and technologies;
- Accelerate performance of computing systems to levels required to maintain the stockpile without underground nuclear testing; and
- Synergistically link the capabilities of the weapons program to the needs of the national security community.

CHANGE FROM FY 1996:

Growth from FY 1996 reflects the maturing of the Accelerated Strategic Computing Initiative activities are fully engaged in FY 1997, resulting in increased funding requirements above the FY 1996 implementation level. Additional small increases are due to increased weapon study requirements to support the enduring stockpile.

MEASURABLE PERFORMANCE ACTIVITIES (Summary of Program Category Pages):

FY 1995:	FY 1996:	FY 1997:
- Continued a number of projects generally supporting safety studies such as: Nuclear Explosive Safety Studies, Weapon Appraisal Process, Weapons System Safety Assessments and others. - Continued effort to obtain baseline data for the W76 and W80 using hydrodynamic pin shots, gas cavity radiographic tests , and aged high explosive tests. - Completed prototype fabrication, final design review and Production/Operational Readiness Review for the Weapons Transportation Safeguards Systems. - Performed design analysis of proliferant/terrorist devices using metal oxides and enriched uranium systems.	- Pursue follow on to SLBM Phase II Study to look at options needed for reliable extension of the SLBM warhead service life. - Continue design of system for a prototype retrieval/display utility for textual and graphical information. - Establish programs with industry to advance computing system capability by 100X in FY 1997. - Begin environmental monitoring of the Tritium Research Laboratory. With monitoring in place other programs can occupy the facility and use it as general laboratory space. - Explore disablement effectiveness of a high-energy electron beam and study the feasibility of an accelerator and other speed-of-light disablement techniques.	- Complete W55 and W79 dismantlement. Begin W56 dismantlement as the first SS21 (seamless safety) example. - Capture and document, in a usable form, weapons design information for the development of safe dismantlement operations at Pantex and disassembly operations at Y-12. - Complete first versions of virtual prototyping codes and demonstrate minimal capability in manufacturing and aging analysis. - Final completion of the Tritium Research Laboratory project will depend upon the results of monitoring programs. If monitored tritium levels stay below the determined threshold for one year then monitoring may be discontinued.

FUNDING LEVELS:

$255,733	$340,755	$361,385

CORE STOCKPILE STEWARDSHIP-*Programs & Initiatives Summary*

DEVELOPMENT ACTIVITIES provide for preproduction design and engineering activities including initial design and development of all new weapon designs, if needed; the design and development of weapon modifications; the technical aspects of the surveillance laboratory and flight test program; the analysis behind safety studies and assessments; studies and research to apply basic science to weapon problems producing new technologies, products and processes; command and control and surety (safety, security, and use control) technology development and implementation; and the analysis needed to dismantle and safely store or destroy weapons being removed from the stockpile.

Programmatic Subcategories include: **Stockpile Readiness Program, Enduring Stockpile Program, Future Stockpile Program,** and **Stockpile Reduction Program.**

PROGRAM GOALS:

- Support the evaluation and maintenance of nuclear weapons in the active and inactive stockpile;
- Identify and respond to performance and safety issues associated with the stockpile;
- Ensure the availability of technologies required for the support of the enduring stockpile; and
- Ensure weapons dismantlements are timely, safe, and secure.

CHANGE FROM FY 1996:

Program changes from FY 1996 include increases in the Nuclear Explosive Safety Studies/Seamless Safety 21 efforts, coordination with the Weapons Stockpile Management enhanced surveillance program and a study for SLBM Warhead Protection. B61 modification 335 and 339 are expected to transition into production in FY 1997 and reduce the need for development funding for that effort.

MEASURABLE PERFORMANCE ACTIVITIES (Summary of Development Activities Detail):

FY 1995:	FY 1996:	FY 1997:
- Continued a number of projects generally supporting safety studies such as: Nuclear Explosive Safety Studies, Weapon Appraisal Process, Weapons System Safety Assessments and others. - W87 Life Extension Program developed structural modifications for the physics design and analyzed the environments and loads associated with transitioning to a single warhead launch platform. - Continued AT-400A pit storage container development (fixtures for W48, W55, and W56).	- Complete development of B61-11 modification for Stratcom. - Continue development of W87 Life Extension Program to maintain viability of stockpile weapon. - SLBM Warhead Protection Program is based on the results of the SLBM Phase II Study. This cooperative effort studies design options needed to ensure the reliable extension of the SLBM warheads service life and maintain the design team expertise and capability.	- Continue to develop and evaluate enhanced diagnostic techniques for characterization of aging effects in stockpiled systems and begin characterization for predictive models. - Continue Pit Fire Resistance/Ceramic Coated Pits effort to evaluate techniques for increased fire resistance in weapons. - Complete W55 and W79 dismantlement. Begin W56 dismantlement as the first SS21 (Seamless Safety) example.

FUNDING LEVELS:

$144,565	$151,463	$147,910

STOCKPILE READINESS PROGRAM focuses on the development efforts for all day-to-day activities supporting the evaluation and maintenance of nuclear weapons in the active and inactive stockpile. The range of activities include analysis and technical support during production, assembly, and dismantlement; surveillance testing (both laboratory and flight); required safety assessments; development of weapon-specific technologies, products and processes needed by the production complex, particularly to enhance the surveillance process; and liaison activities with the Department of Defense, particularly through Project Officers Groups and the Nuclear Weapons Council. These activities are primarily devoted to safety studies mandated by external agencies.

MEASURABLE PERFORMANCE ACTIVITIES (Development Activities Stockpile Readiness Program Detail):

FY 1995	FY 1996:	FY 1997:
- Completed a number of projects generally supporting surety studies such as: Nuclear Explosive Safety Studies, Weapon Appraisal Process, Weapons System Safety Assessments and others. Most are required by DOE orders, or external regulation and agencies. - Undertook Enhanced Surveillance projects by the individual laboratories to gain a better understanding of the effects of extended service life upon weapons. - Secure PAL (Permissive Action Link) Recode Systems established requirements and began development of the Theater Secure Recode System for deployment in US EUROPEAN COMMAND prior to the failure of existing system. - Performed Aircraft Compatibility Tests: B-2, F-16, PA200 weapons drop and vibration tests accomplished. - Demonstrated several aspects of W88, W87, and W80 High Fidelity Joint Test Assemblies.	- Perform Aircraft Compatibility Tests: B-2, Block 20. - Develop models and conduct tests on Explosives Behavior in low shock/slow heat and other abnormal environments. - Begin implementation of seamless safety at Pantex on the Enduring Stockpile. - Conduct studies to support the development of recertification and validation of existing weapons.	- Continue to develop and evaluate enhanced diagnostic techniques for characterization of aging effects in stockpiled systems and begin characterization for predictive models. - Continue Multicode coded switch Encryption Translator (MET) implementation. - Continue models development and tests on Explosives Behavior in low shock/slow heat and other abnormal environments. - Begin and complete Navy Weapon System Safety Assessment. - Complete Fire Resistance Enhancement Phase III. - Complete B52H Study. - Begin implementation of the Joint Surety Plan. - Conduct studies in detonation science.

FUNDING LEVELS:

$45,481	$45,431	$44,855

ENDURING STOCKPILE PROGRAM is focused in two areas. "Stockpile Improvements" support sanctioned weapon-specific development activities intended to go on into a production phase. "Stockpile Options" support more generalized weapons-specific technology explorations to form a basis for later stockpile improvement programs or provide proof of concept for further development. Currently, programs are focused on extending the lifespan of the weapons planned for the enduring stockpile, or in the case of the B53, modifying a current weapon to be a suitable replacement when it is withdrawn from service. The B61-11 and the Submarine Launched Ballistic Missile (SLBM) studies are the major new studies started in FY 1996. The High Power Radio Frequency (HPRF) study is expected to be closed out by the end of FY 1995.

MEASURABLE PERFORMANCE ACTIVITIES (Development Activities Enduring Stockpile Program Details):

FY 1995:	FY 1996:	FY 1997:
- B61 ALT 335 and 339 modifications to include modern nuclear safety features into the active B61-3,4,10 stockpile and to integrate MultiCoded Coded Switch Encryption Translator encryption devices. - W87 Life Extension Program developed structural modifications for the physics design and analyzed the environments and loads associated with transitioning to a single warhead launch platform. - B83 Quality Improvement Program continued development of new radar and qualification activities for B-2 bomber, including electrical simulation model. - Completed the Tri-Lab B61 Enhanced Surety Assessment. - Demonstrated pit reuse options for weapons in the enduring stockpile. - Completed HPRF Phase II study.	- B61-11 Program will develop the structural design modifications for its replacement. - SLBM Warhead Protection Program is based on the results of the SLBM Phase II Study. This cooperative effort studies design options needed to ensure the reliable extension of the SLBM warheads service life and maintain the design team expertise and capability. - Conduct design layouts and feasibility study of B61 Surety Enhancements identified in FY 1995 study. -Initiate an Advanced Microelectronic Project. - W76, W78, and W88 Development support focuses on development of new limited life components (neutron generators etc.) needed to extend the stockpile life of these enduring systems.	- Continue B61-11 Program. Deliver first production unit kit for B61-11t. - Continue to develop design options for the SLBM warhead. - Support development of new boost systems and related tritium handling to replace the existing designs. - Conduct other weapon studies as requested by the Department of Defense. - Continue development of W87 Life Extension Program to maintain viability of stockpile weapon.

FUNDING LEVELS:

$63,746	$64,844	$62,875

FUTURE STOCKPILE PROGRAM supports nonweapon-specific research into enhanced surety and future technologies. Enhanced surety is focused on the development and implementation of technologies to improve safety, security, and use control. Future technology development is directed at the development of new processes or technologies to improve reliability, performance, or other aspects of the weapons to extend their serviceability. New, more secure, and less sensitive firesets are one of the principal areas of investigation.

MEASURABLE PERFORMANCE ACTIVITIES (Development Activities Future Stockpile Program Detail)

FY 1995:	FY 1996:	FY 1997:
- In the Pit Fire Resistance/Ceramic Coated Pits effort evaluated environments and techniques useful to provide increased fire resistance in enduring stockpile weapons - Detonation systems research provided the design, engineering and development of new technologies which would be used as safety improvements in the enduring stockpile. - Established project level requirements for the B61-3/4/10 Stockpile Upgrade Project. - Demonstrated process for application of a fire-resistant coating. - Demonstrated small build production capabilities. - Completed Phase Two experimental tests of hardware for vulnerability to EMP.	- Establish weaponization requirements for advanced detonation systems. - Pursue advanced safety and use control technologies. - Demonstrated compatibility and containment of fire resistant coatings. - Perform analysis of "self-aware" weapon systems.	- Evaluate surety and cost benefits for alternate technologies for enhancing surety in the enduring stockpile. - Continue Pit Fire Resistance/Ceramic Coated Pits effort to evaluate environments and techniques useful to provide increased fire resistance in enduring stockpile weapons. - Continue to study detonation systems which provide the design, engineering and development of new technologies which would be used as safety improvements in the enduring stockpile.

FUNDING LEVELS:

$24,801	$30,939	$30,145

STOCKPILE REDUCTION PROGRAM provides laboratory support for the timely, safe, and secure disassembly of U.S. weapons. The retirement of large numbers of older stockpile weapon systems has lead to an increased emphasis on compliance with current environmental, safety and health requirements and to the design of disassembly processes and tooling to meet modern safety standards. The Stockpile Stewardship laboratories provide support of disposal and storage efforts at Pantex and Y-12 and provide development of advanced technologies to improve dismantlement operations.

MEASURABLE PERFORMANCE ACTIVITIES (Development Activities Stockpile Reduction Program Detail):

FY 1995:	FY 1996:	FY 1997:
- Completed dismantlement of W68, W70, and W71 warheads. - Restarted W48 dismantlement. - Prepared for W55, W56, and W79 dismantlement, with W56 as the first SS21 (Seamless Safety) example. - Continued contamination evaluation of closed military bases. - Continued AT-400A pit storage container development (fixtures for W48, W55, and W56). - Supported first dismantlement unit of B61-0. - Supported Pantex in the development of alternate disposal methods for high explosives. Delivered W79 HE dissolution workstation. - Completed first phase of information management network (Straight-Line).	- Complete W48 dismantlement. - Begin W55 and W79 dismantlement. Continue to prepare W56 as the first SS21 (Seamless Safety) example. - Implement a base hydrolysis HE disposal pilot project at Pantex. - Issue the B53 SS21 safety specification. - Complete the B69 dismantlement preparation by the "Seamless Safety" process. - Expand the Straight-Line network to operational sites including Pantex and Sandia National Laboratories.	- Complete W55 and W79 dismantlement. - Begin W56 dismantlement as the first SS21 (Seamless Safety) example. - Continue contamination evaluation of closed military bases. - Continue AT-400A pit storage container development support for dismantlement schedule. - Begin to prepare W62 for dismantlement.

FUNDING LEVELS:

$10,537	$10,249	$10,035

EXPERIMENTAL ACTIVITIES provides data to maintain certification of the current stockpile through experiments using high explosives and may use special nuclear material. These experiments are conducted at the national laboratories and at the Nevada Test Site. These experiments directly support, although are not driven by, Presidential direction to maintain the ability to conduct an underground nuclear test at the Nevada Test Site. Funding to provide support by the Nevada Test Site contractors of these experiments is included in the **Testing Capabilities and Readiness** budget category.

Programmatic Subcategories include: **Archiving, Nuclear Component Assessment,** and **Nonnuclear Component Assessment.**

PROGRAM GOALS:

- Identify, analyze, and archive critical information on weapons design, testing and production from retiring laboratory and Nevada Test Site personnel,
- Support the acquisition of new experimental data on the physics of nuclear components to allow certification of those components,
- Experimentally test nonnuclear components to insure their ability to withstand high levels of radiation experienced during the lifecycle of a nuclear weapon.

CHANGE FROM FY 1996:

There are no major changes in this program from FY 1996 to FY 1997. Program remains at a level of effort necessary to provide data required to support the enduring nuclear weapons stockpile.

MEASURABLE PERFORMANCE ACTIVITIES (Summary of Experimental Activities Detail):

FY 1995:	FY 1996:	FY 1997:
- Retrieved, actively reviewed, and stabilized engineering and underground test methods and data for all operational and technical areas involved in past underground nuclear testing.	- Continue efforts in the design of a demonstration system for a prototype retrieval/display utility for textual and graphical information.	- Capture and document, in a usable form, weapons design information for the development of safe dismantlement operations at Pantex and disassembly operations at Y-12.
- Continued effort to obtain baseline data for the W76, W80 and W88 using hydrodynamic pin shots, gas cavity radiographic tests, and aged high explosive tests.	- Hydrodynamic experiments are to be conducted to obtain data for stockpile system primaries including W76, W80, W84, and W89, and to evaluate safety upgrade options for stockpile system primaries.	- Complete development for double pulsed PHERMEX to supply increased radiographic information on hydrodynamic experiments.
- Continued radiation transport code improvements and benchmark code performance run-time and storage optimization.	- Complete development of 3-D Internal Electromagnetic Pulse studies and begin to validate the new 3-D, deterministic radiation transport code.	- Experiments in z-pinch physics will be conducted on the modified Particle Beam Fusion Accelerator (PBFA-IIZ) to enable validation of hot plasma scaling laws and conduct key source development research.

FUNDING LEVELS:

$55,878	$55,290	$54,150

ARCHIVING: The purpose of the DP Nuclear Weapons Archiving Program is to identify and preserve information on stockpile weapon design parameters, production and engineering data, and data from nuclear and nonnuclear tests in order to facilitate certification of the current stockpile weapons. Many activities focus on identification, analysis, and archiving of information from retiring weapon designers, production specialists, and computational model specialists. This information and data are preserved and used for analysis of current stockpile weapons and their effects; support of proliferation analysis; critical information for emergency response; training future scientists, engineers, and technicians; and preserving information for reconstitution.

MEASURABLE PERFORMANCE ACTIVITIES (Experimental Activities Archiving Detail)

FY 1995:	FY 1996:	FY 1997:
- Continued the effort of archiving underground nuclear test, weapon design, and production data. - Retrieved, actively reviewed, and stabilized engineering and underground test methods and data for all operational and technical areas involved in past underground nuclear testing. - Continued the Knowledge Preservation Project to capture, in retrievable form, undocumented nuclear weapon component design information. - Continued sponsorship of data archiving workshops with participation from the weapons laboratories and the production sites. - Finished the recovery and stabilization of all relevant data related to the W76. Begin a similar effort for the B61.	- Retrieve, actively review and stabilize engineering and underground test methods and data for all operational and technical areas involved in past underground nuclear testing. - Continue efforts in the design of a demonstration system for a prototype retrieval/display utility for textual and graphical information. - Continue the Knowledge Preservation Project. - Will apply Livermore Archiving Mosaic Platform (LAMP) to test operation technologies as the archiving medium for LLNL, the Joint Testing Organization, and DOE/NV archiving programs. - Complete 3 year effort to transfer NTS seismic data from magnetic tapes to modern formats.	- Continue the Knowledge Preservation Project. - Capture and document, in a usable form, NTS contractor engineering and underground test methods and data for all operational, safety, and technical areas involved in past underground nuclear testing. - Capture and document, in a usable form, weapons design information for the development of safe dismantlement operations at Pantex and disassembly operations at Y-12. - Continue to evaluate with modern calculation tools nuclear weapons information from nuclear tests and hydrodynamic experiments.

FUNDING LEVELS:

$13,378	$15,866	$15,735

NUCLEAR COMPONENT ASSESSMENT The performance of modern nuclear weapons depends on complex physical phenomena, many of which are incompletely understood. Underground nuclear testing established the experimental basis for improved understanding of the physics occurring within a nuclear weapon. Data obtained from experiments in underground tests were used to benchmark computer codes. With the moratorium on underground nuclear testing, scientists and engineers are working on experiments using hydrodynamic techniques with and without special nuclear material to assess a limited dimension of physical phenomena. These experiments allow laboratory personnel to compare experimental data with data from prior underground nuclear tests in order to validate or modify computational codes. This experimental process involves stockpile nuclear components, diagnostic instrumentation, analysis, and fielding and is vital to maintaining expertise to certify the nuclear stockpile. These experiments are also important to learn more about the nuclear stockpile as it ages past its originally intended lifetime.

MEASURABLE PERFORMANCE ACTIVITIES (Experimental Activities Nuclear Component Assessment Detail):

FY 1995:	FY 1996:	FY 1997:
- Continued effort to obtain baseline data for the W76, W80 and W88 using hydrodynamic pin shots, gas cavity radiographic tests , and aged high explosive tests. - Physics analysis of proposed design options for the W87 Life Extension Program were carried out with UGT data. - Developed a longlife neutron tube for use in Neutron Generator Components. The resulting Generators will have a longer shelf life, while still meeting needs of the Stockpile Stewardship program. - Conducted the Kismet experiment at the NTS Lyner Site. The experiment verified the containment characterization of Lyner, tested diagnostics for use in hydrodynamic experiments, and provided a means to demonstrate test readiness.	- W87 Life Extension Program will continue with major effort to rework and modernize the W87 modeling processes with improved physics and complete material definition. Effort will continue into FY 1997. - Hydrodynamic experiments are to be conducted to obtain data for stockpile system primaries including W76, W80, W84, and W89, and to evaluate safety upgrade options for stockpile system primaries. - Continue development of 20-beam velocimeter and gamma ray camera to obtain improved experimental data return. - Experiments are to be conducted to obtain additional material property data on special nuclear property data to improve computer analysis.	- Hydrodynamic experiments will be conducted to obtain baseline data for stockpile system primaries including W76 and W80. - Hydrodynamic experiments will be conducted on a W76 using aged components to investigate possible effects of aging on system performance. - Hydrodynamic experiments will be conducted to obtain fundamental properties data on plutonium and uranium to improve understanding and calculational modeling of stockpiled nuclear weapons. - Hydrodynamic experiments will be conducted to normalize calculational models needed to assess nuclear safety. - Complete development for double pulsed PHERMEX to supply increased radiographic information on hydrodynamic experiments.

FUNDING LEVELS:

$38,600	$35,417	$34,415

CORE STOCKPILE STEWARDSHIP-*PROGRAMS & INITIATIVES*-Experimental Activities Detail (2 of 3)

NONNUCLEAR COMPONENT ASSESSMENT: Aboveground experiments are used to assess and certify nonnuclear stockpile weapon subsystems and component hardware to the effects of neutron, x-ray and gamma-radiation. Correlation of underground nuclear testing data with radiation simulator data is applied to understand electronic and material responses and enhance protocols for testing and certification of components, subsystems, and systems. Experiments with high-energy density plasmas provide basic hohlraum temperature versus scaling law validation and x-ray data that support development of advanced simulation capability critical to future certification efforts of nonnuclear components.

MEASURABLE PERFORMANCE ACTIVITIES (Experimental Activities Nonnuclear Component Assessment Detail):

FY 1995:	FY 1996:	FY 1997:
- Planned and continued preparation for arming and firing (A&F) procurement. - Maintained adequate materials for participation on any type of permitted experiment at the Nevada Test Site. - Continued development of the Particle Beam Fusion Accelerator (PBFA) and pulsed power module to enable high energy density and scaling law experiments. - Continued radiation transport code improvements and benchmark code performance run-time and storage optimization. - Continued development of three dimensional Internal Electromagnetic Pulse (IEMP) studies to validate the new 3-D, deterministic radiation transport code. - Single Event Upset tests were performed at the SPR Facility and demonstrated reactor-driven heavy ion source single event effects in a commercial SRAM.	- Continue preparation for arming and firing procurement and maintenance of materials for any type of permitted experiment or underground test, should it be required. - Continue to maintain and upgrade Saturn, HERMES III, and SPR III. - Complete radiation transport code improvements and benchmark of code performance run-time and storage optimization. - Complete development of 3-D Internal Electromagnetic Pulse studies and begin to validate the new 3-D, deterministic radiation transport code. - Modification of the Particle Beam Fusion Accelerator (PBFA-II) will be completed, and advanced pulsed power will continue. Initial z-pinch experiments begin and will be completed in FY 1997 to validate the hot plasma scaling laws, conduct key source development research, and develop the engineering necessary to transport required energy levels along a magnetically insulated transmission line.	- Validation protocols for both electronics and materials will be applied to new designs for replacement hardware and subsystems in maintaining the stockpile. Also applications of IEMP circuit response codes in combined Transient Radiation Effects on Electronics (TREE)/IEMP testing continue. Work will also continue on assessing aged components in the enduring stockpile. - Experiments in z-pinch physics will be conducted on the modified Particle Beam Fusion Accelerator (PBFA-IIZ). Experiments with advanced pulsed power technologies will continue. This will enable validation of hot plasma scaling laws, conduct key source development research, and develop and establish the engineering necessary to store and transport required energy levels for future applications.

FUNDING LEVELS:

$3,900	$4,007	$4,000

ACCELERATED STRATEGIC COMPUTING INITIATIVE: ASCI is a 15 year program (FY 1996 - 2010) supporting Defense Programs' response to the Presidential decision to pursue a zero yield Comprehensive Test Ban treaty. ASCI is a balanced program to accelerate the development of simulation codes, computer platforms and computing environments needed to address the challenges of credibly simulating the performance, safety, and reliability of the enduring nuclear stockpile. ASCI works closely with the U.S. industry to accelerate its plans to provide computer systems far exceeding current industry projections, but essential to Stockpile Stewardship. ASCI will engage U.S. universities on critical simulation capability problems addressing physics, materials modeling, and computer science issues. ASCI builds on and accelerates efforts found in the Computation and Modeling program.

PROGRAM GOALS:
- Create 3-D, full systems virtual testing and prototyping ability based on advanced weapon codes and high performance computing.
- Develop a credible path to allow confidence in the abilities of computers to simulate "real world" events.
- Work with the computing and software industry to accelerate performance and storage trends in computing systems.
- Provide the needed ability to analyze, evaluate, maintain, and prototype nuclear weapons and weapons components.

CHANGE FROM FY 1996:
Increased funding in FY 1997 continues support of 3 partnerships with industry, increases the number of applications development projects, and accelerates the development of computer environments (e.g., programming tools, networks, storage systems, visualization) to support the development and use of the advanced applications.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
There was no activity in this category in FY 1995. Activities begin in FY 1996.	- Demonstrate a 10x better virtual testing capability in safety and hydro code algorithms for massively parallel computers. - Establish multiple joint programs with computing and software industry to advance computing system capability in ASCI by 100X in FY 1997. - Establish focused effort for explosion codes which treat high energy density physics and low energy density physics in a coupled way and with high fidelity and three dimensional geometries. - Initiate virtual prototyping models to support safety codes, pit production, and surveillance. - Install the first high speed, secure network among the three weapon labs and enable direct access from the three-labs to highly parallel computer systems.	- Install first ever common software approach and initial software tools for code development and use at labs. - Combine and install latest encryption technology and high speed network to connect application teams with world's most advanced computers. - Demonstrate an increase of 100X over weapons codes through a combination of better simulation capability and improved computer platform performance. - Demonstrate an improved capability in the area of materials aging with additional physics and fidelity. - Initiate advanced physics models in 3-D in important implosion/explosion phase of nuclear weapons operation. - Complete first versions of virtual prototyping codes and demonstrate minimal capability in manufacturing and aging analysis.

FUNDING LEVELS:

$0	$85,000	$121,615

SPECIAL PROJECTS: This budget category provides for unique miscellaneous research and development and support activities necessary to carry out the Weapons Stockpile Stewardship program, but which do not programmatically fit into any other category. Federal support activities previously included in this category have been moved to the Weapons Program Direction decision unit.

Programmatic Subcategories include: **Weapons Transportation Safeguards Systems**, **Extraordinary ES&H Site Remediation**, **Joint DoD/DOE Munitions Technology Development Program,** and **Other Activities**.

PROGRAM GOALS:

- Develop and prototype the SafeGuards Transporter for ground transportation of weapons and special nuclear materials,
- Complete one-time prioritized environmental corrective actions, particularly the Propellants, Explosives, and Pyrotechnics Evaluation and Reapplications (PEPER) project and the cleanup of the Tritium Research Laboratory (TRL),
- Cooperate with DoD on R&D in areas of mutual interest including energetic materials, electronics, and warhead technology,

CHANGE FROM FY 1996:

The Weapons Transportation Safeguards Systems transitions from a research and development project to a production activity, and the cleanup of the Tritium Research Laboratory moves into a monitoring program for unexpected residual tritium releases.

MEASURABLE PERFORMANCE ACTIVITIES (Summary of Special Projects Detail)

FY 1995:	FY 1996:	FY 1997:
- Completed prototype fabrication, final design review and Production/Operational Readiness Review for the Weapons Transportation Safeguards Systems.	- Complete development of the SafeGuards Transporter Facilitate transition from research and development effort to active production capability.	- Final completion of the TRL project will depend upon the results of ongoing monitoring programs. If monitored tritium levels stay below the determined threshold for one year then monitoring may be discontinued.
- Began transitioning the Tritium Research Laboratory (TRL) at Sandia National Laboratory in Livermore, California (SNL/CA) for other uses. Completed the removal of accountable tritium and determined the residual tritium to be less than 1000 Curies.	- Per an agreement with the State of California's Environmental Protection Agency, begin environmental monitoring of the Tritium Research Laboratory. With monitoring in place other programs can occupy the facility and use it as general laboratory space.	- Implement improved DDT model into CTH hydrothermal code; insert a multiple velocity DDT model into the CTH code and benchmark it with available data.
- Developed new capability for high strain rate testing under tensile loads to use in conjunction with a high energy electron beam for rapid heating of test sample.	- Continue development work of next generation thermochemical code CHEETAH; begin beta testing with DoD.	

FUNDING LEVELS:

$35,198	$30,365	$19,530

WEAPONS TRANSPORTATION SAFEGUARDS SYSTEMS was an effort to develop and prototype the SafeGuards Transporter to replace the 20 year old Safe Secure Transport for ground transportation of weapons and special nuclear materials. This effort transitions to a production effort funded within Weapons Stockpile Management in FY 1997.

CHANGE FROM FY 1996:
Technology research and development efforts on the Weapons Transportation Safeguards Systems ended in FY 1996 with no remaining activities in FY 1997. Production units of the trailers is included in the **Weapons Stockpile Management** request.

MEASURABLE PERFORMANCE ACTIVITIES (Special Projects/Weapons Transportation Safeguards Systems Detail):

FY 1995	FY 1996	FY 1997
- Efforts to enhance geographic based vehicle tracking system evaluated extendibility and improved query response time using the spatial index, and demonstrated real-time graphical user interface. - Prototype fabrication, final design review and Production/Operational Readiness Review completed. Delivery of first production unit scheduled. - Continued effort in transportation risk assessment. Efforts included statistical descriptions of heavy truck accident severities and analysis of the plutonium dispersal for accidents involving SGT designs.	- Complete development of the Safeguards Transporter. - Facilitate transition from research and development effort to active production capability. - Support delivery of first production units.	- No research and development activity continues in this category.

FUNDING LEVELS:

$7,001	$4,000	$0

EXTRAORDINARY ES&H SITE REMEDIATION focuses on completing significant one-time prioritized corrective actions that do not meet the funding criteria of Environmental Restoration and Waste Management. These actions are the responsibility of Defense Programs, the landlord at Sandia National Laboratories. Two of the larger projects have been the Propellants, Explosives, and Pyrotechnics Evaluation and Reapplications (PEPER) project and the cleanup of the Tritium Research Laboratory (TRL). There is also an ongoing program to remove asbestos from various buildings. PEPER, completed in FY 1995, disposed of several hundred excess rocket motors stored at Sandia Technical Area 3. TRL work will continue through FY 1997. Final completion of the TRL project will depend upon the results of monitoring programs intended to confirm that residual tritium is not being released to the environment. Remediation of the TRL involved the removal of potentially contaminated equipment, decontamination and the performance of radiological surveys. The objective is to retain the use of the building as general laboratory space with initial occupancy scheduled for FY 1996.

CHANGE FROM FY 1996:
Funding decrease from FY 1996 reflects the completion of active remediation of the Tritium Research Laboratory with only monitoring for residual tritium occurring in FY 1997. Asbestos decontamination and demolition continues at same level of effort.

MEASURABLE PERFORMANCE ACTIVITIES (Special Projects Extraordinary ES&H Site Remediation Detail):

FY 1995:	FY 1996:	FY 1997:
- Completed the Propellants, Explosives, and Pyrotechnics Evaluation and Reapplication (PEPER) project to place SNL into compliance with DOE Explosive Safety Manual. PEPER disposed of several hundred excess rocket motors. - Began transitioning the Tritium Research Laboratory (TRL) at Sandia National Laboratory in Livermore, California (SNL/CA) for other uses. Completed the removal of accountable tritium and determined the residual tritium to be less than 1000 Curies. - Continued asbestos cleanup of SNL buildings 805 and 869. Performed site/building audits to prioritize facilities for cleanup and determined which facilities could be reused and which facilities should be demolished.	- Complete the site characterization and stabilization of radioactive hazards at TRL. Clean the exhaust ventilation system. Remove potentially contaminated equipment and decontaminate it as necessary prior to disposal. Per an agreement with the State of California's Environmental Protection Agency, begin environmental monitoring. With monitoring in place other programs can occupy the facility and use it as general laboratory space. - Complete asbestos cleanup of the basements of SNL buildings 805 and 869 with the intent to reuse the space. Clean up and demolish wooden framed buildings 844 and 845. Perform site/building audits and provide program support to determine which facilities need to be cleaned up.	- Continue environmental monitoring at TRL. If for one year of monitoring, which begins in FY 1996, the emission of tritium stays below the determined threshold then monitoring may be discontinued. Final completion of the TRL project will depend upon the results of monitoring programs. - Continue asbestos cleanup and demolition of SNL buildings 9830B, 863, 906, 950, and 951. Continue to prioritize facilities for asbestos cleanup.

FUNDING LEVELS:

$7,700	$3,900	$2,100

JOINT DOD/DOE MUNITIONS TECHNOLOGY DEVELOPMENT PROGRAM: This program, operating under the auspices of the Non-Nuclear Munitions Technology Memorandum of Understanding (MOU) between the Department of Defense (DoD) and the DOE, represents a leveraging of funds and resources to improve the capabilities of nonnuclear munitions. Matching funds from the two departments support a cooperative program of research and development in areas of mutual interest between the DoD and DOE including energetic materials, electronics, warhead technology, and a variety of supporting technologies. Activities in this category are coordinated through a five year plan that is updated and aproved annually by both agencies.

MEASURABLE PERFORMANCE ACTIVITIES (Special Projects Joint DOD DOE Munitions Technology Development Program Detail):

FY 1995:	FY 1996:	FY 1997:
- Measured mechanical properties for a range of explosives to support development of behavior models of damaged explosives behavior. - Expanded the national warhead materials database to include refractors W and Mo. - Developed new capability for high strain rate testing under tensile loads to use in conjunction with a high energy electron beam for rapid heating of samples. - Incorporated chemical reactions and thermodynamic models into the integrated hydrocode ALE3D to delineate the fundamental mechanisms associated with initiation in the energetic materials when the confined system is subject to dynamic loadings. - The Molten Salt Destruction process for hazardous organic waste disposition was demonstrated effective, environmentally acceptable, and safe for over 25 separate materials, including difficult DoD pyrotechnic smokes and dyes. Agreement was reached to transition technology to Army and Air Force facilities.	- Implement improved deflagration to detonation transition (DDT) model into CTH hydrothermal code, investigate wave nature of reactive, nonequilibrium multiphase flows and advanced numerical techniques for predicting DDT. - Develop improvements in the underlying science of thermochemical code CHEETAH; begin beta testing with DoD. - Utilizing very high speed photography (IC Camera), observe the origin of copper jet surface structure during shaped-charge detonation to determine its relation to jet stability. - Complete penetrator dynamic reaction modeling in concrete; incorporate data to allow study of non-ideal applications of multistage and ballistic penetrator munitions. - Pursue accurate temperature measurements of shaped charge jets to benchmark the computations of the jet formation and elongation process.	- Implement improved DDT model into CTH hydrothermal code; insert a multiple velocity DDT model into the CTH code and benchmark it with available DoD/DOE data. - Beta test newest version of CHEETAH code with DoD; incorporate updated kinetics and new condensed and gaseous equations of state. - Develop and apply high resolution optics as a tool for studying shaped-charge jet formation; utilize infrared imaging system to compliment IC camera use. - Conduct research in demil technologies (base hydrolysis, supercritical water oxidation, molten salt, cryocycling and biotreatment) for HE and other types of hazardous waste; design and construct a pilot biotreatment system for DoD; forecast cryocycling capability for demil inventory; demonstrate molten salt technology throughput/demonstrate large scale safety considerations/operate a pilot plant/transfer same to DoD or industrial operator.

FUNDING LEVELS:

$13,403	$14,496	$14,880

FEDERAL SUPPORT provided for federal oversight of Lawrence Livermore National Laboratory through the Oakland Operations Office (Lawrence Livermore Site Office), the Los Alamos National Laboratory through the Los Alamos Area Office and of Sandia National Laboratories (Albuquerque) through the Kirtland Area Office, and programmatic oversight of the Nevada Test Site and the North Las Vegas Facility through the Nevada Operations Office. Another major activity is ongoing support of the (County of) Los Alamos Firefighters. **Consistent with Congressional direction, funding for this activity in FY 1997 is being requested within Weapons Program Direction.** FY 1995 and FY 1996 funding is also shown in Weapons Program Direction. Crosswalks showing where changes in the location of funding for federal personnel between Weapons Activities decisions units have occurred to implement the Congressional guidance are included in the Weapons Program decision unit; a summary crosswalk table is provided following the Stockpile Stewardship program funding profile.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995	FY 1996	FY 1997
- Continued support for the Los Alamos Area Office, Kirtland Area Office, Nevada Operations Office, (County of) Los Alamos Firefighters, and Oakland Operations Office. **Funding appropriated for this activity in Weapons Stockpile Stewardship is shown in Weapons Program Direction.**	- Continue support for the Los Alamos Area Office, Kirtland Area Office, Nevada Operations Office, (County of) Los Alamos Firefighters, and Oakland Operations Office. - Begin implementation of Department of Energy Strategic Alignment Initiatives, as they apply to Stockpile Stewardship federal oversight. Continue with reductions of staff and support contracts at the Los Alamos and Kirtland Area Offices and the Nevada Operations Office as appropriate **Funding appropriated for this activity in Weapons Stockpile Stewardship is shown in Weapons Program Direction.**	- Consistent with Congressional guidance, funding for federal support activities associated with the Weapons Stockpile Stewardship program are transferred to Weapons Program Direction.

FUNDING LEVELS:

$0	$0	$0

OTHER ACTIVITIES provides for miscellaneous activities required to support the ongoing Stockpile Stewardship program. This includes ongoing research and development support activities with other federal agencies, such as the National Institute of Science and Technology. Activities also include small one-time efforts that do not fit easily into other budget categories and for which special visibility is required, such as the environmental impact statement for the Dual-Axis Radiographic Hydrotest Facility at Los Alamos National Laboratory.

CHANGE FROM FY 1996:
There are no major changes in this program from FY 1996 to FY 1997.

MEASURABLE PERFORMANCE ACTIVITIES (Special Projects Other Activities Detail)

FY 1995	FY 1996	FY 1997
- Proceeded with a remedial environmental impact statement for the Dual-Axis Radiographic Hydrotest Facility (DARHT) at Los Alamos National Laboratory. The record of decision (ROD) supported continuing with the construction of the facility and implementing a program phased containment of the firing site.	- Support of legal activities associated with the injunction against proceeding with construction of DARHT will continue.	- Continue miscellaneous support as required to maintain the flexibility of the Stockpile Stewardship program.

FUNDING LEVELS:

$7,094	$7,969	$2,550

THREAT ASSESSMENT AND TREATY IMPLEMENTATION: These activities focus on forging a link between other national security programs and the core nuclear weapon stewardship programs. They provide Defense Programs with an assessment of the future threat environment (technical, political, arms control, etc.) in which its nuclear weapon stewardship mission will be carried out. They also include technology research on surprise proliferation response technologies.

PROGRAM GOALS:

- Synergistically link the capabilities of the weapons program to the needs of the national security community.
- Increase knowledge in major program elements including systems studies, intelligence-related systems research, proliferation-related information management, knowledge preservation, and proliferation training to allow treaty implementation with full knowledge of potential implications.

CHANGE FROM FY 1996:

There are no major changes in this program from FY 1996 to FY 1997. Program remains at a level of effort necessary to support and maintain required research and development activities.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Continued efforts to develop verification computer models. Reviewed existing test data including one point experiments and computational models of one point tests and calculated verification of the experiments.	- Develop proliferation response technologies to include assessments of possible proliferator/terrorist weapon designs, studies of weapon disablement techniques, and diagnostic technologies.	- Examine potential advanced technical capabilities within permitted experimental regimes. Examine simulation capabilities associated with non-verifiable areas of technology advance.
- Investigated designs of shaped charges which optimize mass and speed in new ways.	- Support limited Russian and Ukrainian technical exchanges and collaborations.	- Continue analysis and experimental determinations of foreign capabilities that could impact U.S. capability to maintain the enduring stockpile.
- Performed design analysis of proliferant/terrorist devices using metal oxides and enriched uranium systems.	- Explore disablement effectiveness of a high-energy electron beam and study the feasibility of an accelerator and other speed-of-light disablement techniques.	- Continue to develop and test hardware that might have serious technical impacts on U.S. ability to continue Stockpile Stewardship and experimentally evaluate the level of such impacts.
- Continued to perform technical proliferation assessments addressing key issues that effect the security, storage, and disposition of weapons and nuclear materials.		

FUNDING LEVELS:

$20,092	$18,637	$18,180

CORE RESEARCH AND ADVANCED TECHNOLOGY provides the science and technology infrastructure, including technical expertise and facilities, needed to support Department of Energy (DOE) defense missions, programs, and initiatives. Emphasis is placed on those research and technology development activities necessary (a) to maintain and improve the understanding of the underpinning science of complex nuclear weapons systems and subsystems and (b) to advance the enabling technologies used in their design, assessment, engineering, production, certification, surveillance, dismantlement, and disposal. It sustains the DOE defense core competencies and core technologies which provide the principal opportunities for assistance to the private sector both in technology and product development and in advanced manufacturing capabilities. The draft "Weapons Core Research Program Plan" provides the planning basis for this activity.

Programmatic Categories include: **Design Assessment Science & Technology, Systems and Components Science & Technology,** and **Chemistry and Materials Science & Technology.**

PROGRAM GOALS:

- Explore concepts, facilities, and technologies that offer options for meeting all future requirements of the enduring stockpile;
- Demonstrate and incorporate new technologies and materials that insure the long-term health, safety and reliability of the stockpile;
- Accelerate the technological growth curve and take advantage of advances to achieve environmental, safety, health and financial savings throughout the life cycle of all stockpile weapons.

CHANGE FROM FY 1996:

Changes from FY 1996 driven by increased Core Stockpile Stewardship program use of the Nova laser, increased emphasis on developing advanced hydrodynamic capabilities, preparation for use of the National Ignition Facility, and insuring that all three laboratories achieve advanced computing capabilities to support implementation of the Accelerated Strategic Computing Initiative.

MEASURABLE PERFORMANCE ACTIVITIES (Summary of Program Category Pages):

FY 1995:	FY 1996:	FY 1997:
- Continued development of methods for characterization of stockpile pits and to improve ability to project future changes in material properties, esp. plutonium.	- Use the Los Alamos Neutron Science Center to begin study of high-explosives microstructure and aging effects using small-angle neutron scattering.	-Ensure that all three laboratories are able to take full, immediate advantage of the near-term advances achieved through the Accelerated Strategic Computing Initiative.
- Tested technology for an Advanced Hydrotest Facility, including the development of a full inductive adder power modulator.	- Conduct research in integrated systems for use control/security applications; advanced nondestructive testing and evaluation techniques; stress measurements inside metals; and advanced surveillance methodologies.	- Continue the development of non-invasive assay techniques for plutonium and uranium in storage and support design concepts to reduce worker exposure during storage operations.
- Explored virtual reality computer tools relevant to assembly and dismantlement to assess use for direct application.	- Characterize performance and sensitivity of aging explosives as part of surveillance of the enduring stockpile.	- Continue Advanced Hydrotest Facility development activities including development of physics design requirements and research of potential pulse power machine technologies.

FUNDING LEVELS:

$428,484	$440,049	$474,090

DESIGN ASSESSMENT SCIENCE & TECHNOLOGY: These elements, commonly dealing with theoretical research, heavily physics-oriented, and computationally intensive, emphasize anticipated future national security missions and requirements.

Programmatic Subcategories include **Conceptual Design and Assessment, Physics, Los Alamos Neutron Science Center,** and **Computation and Modeling**.

PROGRAM GOALS:

- Explore concepts and technologies that offer options for meeting future national security requirements and missions;
- Support basic weapons physics research for components, radiation source development, improved diagnostics and facilities;
- Take advantage of LANSCE's ability to provide critical data in the detection of small-scale material defects; and
- Support the development and maintenance of simulation codes for research in physics, mathematical modeling, and software.

CHANGE FROM FY 1996:

Changes from FY 1996 are increases in the areas of Physics and Computation and Modeling due to increased research and development to take advantage of the experimental capabilities of the Nova Laser and the capabilities that could be available for Core Stockpile Stewardship with the construction of the National Ignition Facility; enhanced efforts on developing advanced hydrodynamic capabilities and ensuring all three laboratories achieve advanced computational capability.

MEASURABLE PERFORMANCE ACTIVITIES (Summary of Design Assessment Science & Technology Detail):

FY 1995:	FY 1996:	FY 1997:
- Completed preliminary designs for pulsed power and laser experiments to determine correlations between physics regimes available in aboveground experiments and by underground tests. - Tested technology for an Advanced Hydrotest Facility, including a full inductive adder power modulator. - Constructed experiments to show feasibility of temperature measurements in initiated high explosives with single-pulses of resonance energy neutrons. - Several codes were modified to operate on scientific workstations to explore whether workstations might be an effective alternative to supercomputers for 2D simulations.	- Provide design support for stockpile improvements. - Provide support for advanced design technology assessments. - Use above ground experimental results and other available data to benchmark hydrodynamic algorithms in computer codes. - Use the Los Alamos Neutron Science Center to begin study of high-explosives microstructure and aging effects using small-angle neutron scattering. - Maintain computational capabilities including hardware support, operations support, software support, and client services.	- Experimentally study high explosive equation of state over a broad range of pressure and volume. - Continue Advanced Hydrotest Facility development activities including development of physics design requirements and research of potential pulse power machine technologies. - Use the Los Alamos Neutron Science Center to continue development of texture measurements as quality signatures and performance indicators for weapon components. - Provide for the placement of a third "first-generation-ASCI" capable computer at the laboratories. This will ensure that all three laboratories are able to take full, immediate advantage of the near-term advances achieved through the Accelerated Strategic Computing Initiative.

FUNDING LEVELS:

$260,289	$277,460	$315,665

CONCEPTUAL DESIGN AND ASSESSMENT: Exploration of concepts and technologies that offer potential options for meeting future national security requirements and missions. Although these activities do not involve formal hardware development, they may include a limited amount of prototyping or experimentation to assess or demonstrate conceptual feasibility. They often require intensive computational analysis. Current areas of interest include, but are not limited to advanced electromagnetic radiation, stealth, and enhanced safety features such as fire resistant pits (FRP), insensitive high explosives (IHE), insertable nuclear components, paste explosives, and advanced containment.

MEASURABLE PERFORMANCE ACTIVITIES (Design and Assessment Science & Technology Conceptual Design and Assessment Detail):

FY 1995:	FY 1996:	FY 1997
- Completed the campaign of ejecta experiments investigating primary performance and reliability. - Completed preliminary designs for pulsed power and laser experiments to determine whether correlations exist between the physics regimes available in aboveground experiments and those regimes accessed by underground nuclear tests. - Reanalyzed the underground test data for the B83 and the W76 with modern calculational tools. - Performed a radiographic core-punch experiment in order to study the late time convergence behavior of the W87 primary. - Smooth Particle Hydrodynamics has been incorporated into the PRONTO finite element code yielding a new, unique capability. SPH is a gridless Lagrangian method that offers the capability to model very high deformation impulsive loading events.	- Provide design support for stockpile improvements, assist in theoretical modeling efforts for the enduring stockpile and technology demonstrations. - Provide support for advanced design technology assessments; assist in evaluation of component revision, and participate in efforts to improve the ability to relate analyses to enduring stockpile issues. - Provide support for device disablement assessments; acquire hydrodynamic data; and participate in efforts to develop specialized disablement techniques. - Provide assistance in archiving efforts to baseline the enduring stockpile.	- Perform weapons analysis and experiments for future stockpile options; conduct equation-of-state benchmark experiments. - Conduct fundamental boost physics experiments; investigate critical fundamental issues with advanced diagnostics. - Integrate benchmark hydrodynamic tests with advanced evaluation tools; support development of programmatically useful radiography at NTS. - Experimentally study high explosive equation of state studies over a broad range of pressure and volume space.

FUNDING LEVELS:

$33,953	$31,339	$35,455

PHYSICS: Supports basic weapons physics research for both nuclear and nonnuclear components, radiation source development, development of improved diagnostics for use in aboveground experimental facilities, and upgrades to those facilities. Physics issues involving hydrodynamics, radiation physics, plasma physics, nuclear physics, solid state physics, optical physics, and chemical physics are being addressed, providing for important physics understanding, code validation, and sustaining the skills of theoretical and experimental scientists. Modeling studies complement the physics effort by using important inertial fusion facilities to conduct weapons-related physics experiments.

MEASURABLE PERFORMANCE ACTIVITIES (Design and Assessment Science & Technology Physics Detail)

FY 1995:	FY 1996	FY 1997
- Conducted radiation flow experiments using the record yields of soft x-rays from Procyon source. - Tested advanced radiation source-target approaches for direct drive x-ray production on both Pegasus and Procyon. - Developed models and fielded diagnostic systems on advanced pulsed power radiation source experiments to prepare for developing designs for Atlas targets. - Tested technology necessary for an Advanced Hydrotest Facility, including the development of a full inductive adder power modulator, and development of an electromagnetic code for simulating electron beam propagation in non-linear lines. - Filled gaps between LANL and LLNL U hugoniot data using explosively-driven flyers. - Completed plans for FXR Double Pulse Upgrade which will provide 2 x-ray beams on the same axis, but separated 1 to 5 microseconds in time.	- Perform experiments to correlate above ground experiments with underground test results. - Use above ground experimental results and other available data to benchmark hydrodynamic algorithms in computer codes. - Develop theoretical improvements of energy transport within and radiation output of devices in the stockpile. - Continue Advanced Hydrotest Facility development activities. - Complete measurements of aluminum ejecta particulate size and velocity distributions in vacuum as a function of surface finish. Explore particulate distribution behavior for one or more additional materials as a function of surface finish at similar shock conditions. Begin characterization of behavior of ejecta launched into high pressure gas.	- Perform actinide equation-of-state calculation and experiments. - Measure and calculate material opacity. - Continue to develop radiation sources for weapons physics applications. - Continue construction support of the Dual-Axis Radiographic Hydrotest Facility with the implementation of the environmental impact statement decision of record following judicial review of enviornmental impact statement.. - Continue Advanced Hydrotest Facility development activities including: -- Development of initial physics design requirements for the potential facility. -- Preliminary design activities for advanced research pulse power machines required to evaluate competing technologies for inclusion in facility design.

FUNDING LEVELS:

$120,207	$120,548	$125,905

LOS ALAMOS NEUTRON SCIENCE CENTER (LANSCE) The LANSCE facility provides a new source of critical data in the detection of small-scale material defects which might serve as indicators of weapon component aging (deterioration/damage) and in the prediction of material performance. Activities include testing the concept of fast neutron radiography of weapon system major components, temperature measurement in shock-insulted explosives using a unique probe based on neutron resonance absorption, spatially-resolved measurements of strain in materials of importance in weapons manufacture, and determination of bulk texture of materials.

MEASURABLE PERFORMANCE ACTIVITIES (Design and Assessment Science & Technology Los Alamos Neutron Science Center Detail):

FY 1995:	FY 1996:	FY 1997:
In FY 1995, the LANSCE facility was operated by the Office of Energy Research (ER). Defense Programs used the facility on a per-test basis. - Refined technology for advanced surveillance with neutron radiography. - Constructed experiments to demonstrate feasibility of temperature measurements in initiated high explosives with single-pulses of resonance energy neutrons. - Prepared experiments bearing on equation-of-state issues for plutonium and other weapon engineering materials. - Began measurements aimed at characterizing material textures in stockpile return and new-process weapon components. - Studied residual strain in welded joints.	In FY 1996 Defense Programs assumes management responsibility for the LANSCE facility from ER. - Explore tomographic methods and perform benchmark measurements for advanced surveillance with neutron radiography. - Investigate potential of single-pulse resonance-energy neutron measurements for temperature and other measurements in small-scale experiments intended to explore weapons hydrodynamics. - Continue experiments on weapons materials equations of state. Work on measurements of Pu elastic constraints and Debye-Waller factors using high-pressure diamond-anvil cell. Begin experimental development effort for Pu phonon measurements. - Begin study of high-explosives microstructure and aging effects using small-angle neutron scattering.	- Carry out a stockpile surveillance experiment using high-energy neutron radiography. - Use single-pulse temperature measurement techniques to study a range of issues important to the science of high explosives. - Continue equations-of-state studies. First phase of plutonium phonon dispersion curve measurements. - Continue small-angle neutron scattering studies of high-explosives aging. - Continue development of texture measurements as quality signatures and performance indicators for weapon components. - Continue development of capabilities for study of residual strain in welds. Perform benchmark experiments. - Continue helium bubble ingrowth studies. Work toward development of a still more sensitive technique.

FUNDING LEVELS:

$7,000	$35,000	$34,160

COMPUTATION AND MODELING: Supports the development, enhancement, and maintenance of simulation codes and databases for the weapons program and research in theoretical physics, mathematical modeling, software and algorithms. With the President's decision to pursue a Zero-yield Comprehensive Test Ban Treaty, computational simulation of nuclear events has become the critical core element of weapon predictive capability and Science-Based Stockpile Stewardship. These activities are essential in weapon safety and reliability assessments, stockpile life extension endeavors, design of physics experiments, developing appropriate diagnostics, and analyzing past nuclear experimental results. Areas of current interest include: assessments of complex/unique accident scenarios; improvements of predictive capability for weapon safety and performance analysis, particularly in support of Science-Based Stockpile Stewardship; improvement in weapon materials dynamic response models; multi-dimensional simulation of physics; visualization tool; and robotics algorithms. Core Computation and Modeling is managed to be consistent with, and supportive of, developments achieved through the Accelerated Strategic Computing Initiative (ASCI).

MEASURABLE PERFORMANCE ACTIVITIES (Design and Assessment Science & Technology/Computation and Modeling Detail):

FY 1995:	FY 1996:	FY 1997:
- Prototyped encryption engine that is scalable and in the gigabit transmission range to support "classified" or "sensitive" high performance computing data transmission over public networks. - Emphasis has been placed on broadening the applicability of design codes so that they can also simulate physics regimes achievable by AGEX facilities. Initial implementation of Adaptive Mesh refinement methods has increased capability to simulate AGEX experiments. - Several 2D weapons codes were modified to operate on scientific workstations. This effort is exploring whether workstations might be an effective alternative to vector supercomputers for 2D simulations. - The SMARTEPANTS/DAVINCI Codes can now communicate through software that translates their respective outputs. The codes have been validated on 1D models and are now being used to study 3D effects parametrically.	- Maintain computational capabilities including hardware support, operations support, software support, and client services. - Perform assessments of complex or unique accident scenarios. - Continue code development to emphasize development and validation of physics models necessary to simulate AGEX experiments with codes that have traditionally been used for weapons design and analysis. Goals are to maximize information obtained from AGEX experiments and to better relate AGEX data to design issues. - Initiate Stewardship Barn Book project that will reevaluate and document with uncertainties nuclear reactions to form a prioritized list developed in conjunction with primary and secondary designers. The Stewardship Barn Book will serve as a foundation for the nuclear sensitivity studies related to SBSS issues.	- Continue code development activities to improve the physics models, numerical solution algorithms, and computer science techniques for the weapons design, analysis, and output codes in support of the other elements of the Stockpile Stewardship Program. This includes, but is not limited to: safety, performance, reliability, and vulnerability assessments in support of stockpile surveillance and engineering design/development programs; support for weapons physics and other experiments conducted as part of the AGEX and ICF experimental program; and support for the review and analysis of historical data. - Provide for the placement of a third "first-generation-ASCI" capable computer at the laboratories. This will ensure that all three laboratories are able to take full, immediate advantage of the near-term advances achieved through the Accelerated Strategic Computing Initiative. - Transfer production computation tasks for the DP program onto the high performance computing platforms.

FUNDING LEVELS:

$99,129	$90,573	$120,145

SYSTEMS COMPONENTS SCIENCE & TECHNOLOGY: This category supports research program elements which emphasize the integration of warhead systems with delivery systems, and advancement of subsystem enabling technologies. Research includes component modularity, standardization, and reuse; utilization of microelectronic systems to improve safety, security and reliability, and development of the tools, methods, and processes needed to support future design and manufacturing requirements.

Programmatic Subcategories include: **Systems Engineering, Electronics, Photonics, Sensors & Mechanical Components,** and **Advanced Manufacturing.**

PROGRAM GOALS:

- Incorporate new technologies into weapon systems and stockpile support operations.
- Support improved command and control, performance instrumentation, safing, arming, fusing and firing.
- Provide intelligent systems that diagnose the condition of weapons with regard to aging, functional status, intrusion/tamper detection, and anticipated performance.
- Develop and qualify advanced processes for materials and components.

CHANGE FROM FY 1996:

Maintains support for use of computer-based models, selective enhancement of unique test facilities for evaluation of model prediction, and integration of model-based development of manufacturing processes into the early stages of engineering.

MEASURABLE PERFORMANCE ACTIVITIES (Summary of Systems Components Science & Technology Detail)

FY 1995:	FY 1996:	FY 1997:
- Explored virtual reality computer tools relevant to assembly and dismantlement to assess direct application use. - Researched models describing advanced single-mode fiber optic star coupler for high capacity information network applications. - Collaborated on development of gamma-ray detectors for a nuclear spectroscopy facility for applications requiring detailed knowledge of nuclear properties. Conducted experiments to demonstrate characteristics of these detectors. - Micromachined combustible gas sensor, designed a control circuit to maintain the filament at constant temperature, and tested with gas mixture.	- Conduct research in integrated systems for use control/security applications, advanced nondestructive testing and evaluation techniques, stress measurements inside metals, and advanced surveillance methodologies. - Research safety assessment and engineering of weapons systems, including development of predictive response to abnormal environments. - Extend vertical-cavity photonic devices to wavelengths suitable for fiber-optic communications and demonstrate 1.3 to 1.7 micron wavelength devices; "native oxide" fabrication technology will be extended to facilitate the demonstration of new photonic device concepts.	- Retain and selectively enhance environmental test facilities for evaluating model predictions to certify performance and assess safety. - Evaluate weapons and components in combined environments (e.g. heat plus shock). - Continue to develop high reliability, low-volume electronics to replace sunset technologies for stockpile maintenance and enable the self-aware weapon. - Develop quick-turn prototypes for special ICs, sensors, and micromachines. - Investigate an integrated engineering design environment. Focus will include direct links from design to the production floor.

FUNDING LEVELS:

$109,564	$106,467	$103,745

SYSTEMS ENGINEERING: Facilitates the incorporation of new technologies into weapon systems and stockpile support operations; demonstration of emerging technologies; and supports improved command and control, performance instrumentation, safing, arming, fusing and firing. These activities sustain capabilities required for the monitoring and assessment of new technologies, command structures, new stockpile configurations, and external threats. Major program focus is on interfacing with a mix of commercial vendor design, analysis, and manufacturing systems to explore component standardization, modularity, and reuse for the manufacture of small-lot, ultra-high reliability components and subsystems, reducing both costs and waste generation.

MEASURABLE PERFORMANCE ACTIVITIES (Systems and Components Science & Technology/System Engineering Detail):

FY 1995:	FY 1996:	FY 1997:
- Developed computer solid models for multipart systems for analysis/design; plastic parts will be produced to evaluate assembly capabilities. - Explored virtual reality computer tools relevant to assembly and dismantlement to assess direct application use. - Researched models describing single-mode fiberoptic star coupler for high capacity network applications. - Collaborated on development of gamma-ray detectors for a nuclear spectroscopy facility for applications requiring detailed knowledge of nuclear properties. Conducted experiments to demonstrate characteristics of these detectors. - Continued development of a new isotopic analytical tool with particle induced emission and accelerator mass spectrometry. Tool opens the possibility to analyze all isotopes and allow detection of SNM at ultra-low levels.	- Develop low cost, smart process access and design; controlled vapor deposition software; advanced failure models, mesh generation, and visualization software; predictive models for fiber optics in radiation environments; cluster recognition techniques and UV fluorescence remote sensing; and advanced visualization techniques to display material defects. - Conduct research in integrated systems for use control/security applications; advanced nondestructive testing and evaluation techniques; stress measurements inside metals; and advanced surveillance methodologies. - Research safety assessment and engineering of weapons systems, including development of predictive response to abnormal environments. - Conduct studies of reliability, surety, quality control, and lifetime extension of materials in the stockpile.	- Evaluate safety and reliability of weapon systems when exposed to a wide range of abnormal environments with computer-based models. - Integrate model-based development of manufacturing processes into the early stages of engineering. - Retain and selectively enhance environmental test facilities for evaluating model predictions to certify performance and assess safety. - Evaluate weapons and components in combined environments (e.g. heat plus shock). - Incorporate expert systems for design and production into search engines for historical weapons data, information, and knowledge.

FUNDING LEVELS:

$60,550	$60,939	$60,800

ELECTRONICS, PHOTONICS, SENSORS & MECHANICAL COMPONENTS. Research in the enabling technologies for components and subsystems which control and operate nuclear weapons; and in intelligent systems that monitor and diagnose the condition of weapons with regard to aging, functional status, intrusion/tamper detection, and anticipated performance. Emphasis is on devices used in conjunction with microelectronic systems offering improved safety, security, reliability, and information processing; improved safety in abnormal environments; enhanced command and control; automated monitoring and inventory control; command disablement; and intelligent manufacturing based on the use of robotics.

MEASURABLE PERFORMANCE ACTIVITIES (Systems and Components Science & Technology Electronics, Photonics, Sensors & Mechanical Componenets Detail):

FY 1995:	FY 1996:	FY 1997:
- Developed a robust chemical vapor deposition process for vertical-cavity surface-emitting lasers, ultra-high-mobility metal-organic vapor-phase epitaxy materials for nanoelectronic devices, and metal-organic vapor-phase epitaxial InP-based materials and initiated development of gas-source molecular beam epitaxial InP-based materials. - Demonstrated meshed involute IMEMS gears and high aspect ratio micromachines, the fabrication of a functioning pressure sensor, and the development of single crystal MEMS Technology and an IMEMS combustible gas detector. - A pattern-recognition algorithm was used to discriminate binary mixtures of gases and vapors, realizing a ninety-three percent accuracy. - Fabricated and tested a micromachined combustible gas sensor, designed a control circuit to maintain the filament at constant temperature, and tested with gas mixture.	- Extend vertical-cavity photonic devices to wavelengths suitable for fiber-optic communications and demonstrate 1.3 to 1.7 micron wavelength devices; "native oxide" fabrication technology will be extended to facilitate the demonstration of new photonic device concepts. - Construct a radiation spectrometer consisting of an array of RadFETs with varying metal film thicknesses on each device to act as an energy filter and an array of combustible gas sensors using micromachined filaments. Investigate new sensors using catalytically-coated FETs and UV sources to decompose organic compounds in water and cause pH change. Develop packaging methods for volatile organic sensors. - Develop comprehensive chemically reacting flow models of Si and/or compound semiconductor CVD processes, demonstrate modeling capabilities with applications to design a state-of-the-art CVD reactor, and demonstrate real-time process control using *in situ* process monitors and active feedback.	- Maintain a defense microelectronics core competency for safety, surety, and use control of nuclear stockpile aligned with commercial technology for production in the future. - Develop high reliability, low-volume electronics to replace sunset technologies for stockpile maintenance and enable the self-aware weapon. - Develop quick-turn prototypes for special ICS, sensors, and micromachines for defense needs. - Develop optoelectronics for high-data rate communications. - Provide a continuing investment for maintaining the supplier of last resort for radiation-hardened electronics.

FUNDING LEVELS:

$36,222	$33,223	$30,410

ADVANCED MANUFACTURING: Advanced Manufacturing develops the tools, methods, and processes needed to support future design and manufacturing requirements. This activity comprises core activities in manufacturing, materials, intelligent systems and machines, and components research, and contributes the science base to enable the development and deployment of cost effective, environmentally acceptable product realization technologies, processes, and methods in direct support of the nuclear weapons stockpile. The DP overall goal is to provide alternatives to using large facilities and replace them with modern infrastructure, using modern information technology and model-based design and development technologies.

MEASURABLE PERFORMANCE ACTIVITIES (Systems and Components Science & Technology/Advanced Manufacturing Detail):

FY 1995:	FY 1996:	FY 1997:
Contributed to the implementation planning for the ADaPT program. Supporting activities took place including:	-Exploit advanced computer/sensor/process technologies to enable maximum understanding and control of key weapon manufacturing processes and to enable embedding of process intelligence in the design phase of product realization cycles.	- Complete development of a set of materials and process advisors consisting of integrated knowledge bases, process models and materials performance data bases.
- Developed a logic engine for process knowledge bases.	- Begin development of a product realization system that yields reliable components and subsystems with reasonably fast cycle time using commercial materials, components, processes and manufacturing.	- Investigate an integrated engineering design environment. Focus will include direct links from design to the production floor.
- Produced an alpha engineering design system to understand the issues and to explore concepts of prototype system gas transfer component design.	- Develop advanced engineering models and computer design of materials response for manufacturing applications.	- Develop models for product and process simulation; emphasis will be on key processes for nuclear and non-nuclear components.

FUNDING LEVELS:

$12,792	$12,305	$12,535

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CHEMISTRY AND MATERIALS SCIENCE & TECHNOLOGY: The specialized materials developed and used in nuclear weapons and their reliability requirements have created a unique set of materials science challenges. These activities are required to address the resolution of aging and reliability issues of weapons, and support remanufacture of components in a timely, cost effective, and environmentally benign way.

Programmatic Subcategories include: **Chemistry and Materials, High Explosives, Special Nuclear Materials,** and **Tritium.**

PROGRAM GOALS:
- Maintenance of engineering competence in materials science.
- Development of models to study aging phenomena; and
- Development of alternative materials to reduce environmental, safety and health concerns

CHANGE FROM FY 1996:
There are no major changes in this program from FY 1996 to FY 1997. Program remains at a level of effort necessary to support and maintain required research and development capabilities.

MEASURABLE PERFORMANCE ACTIVITIES (Summary of Chemistry and Materials Science & Technology Detail):

FY 1995:	FY 1996:	FY 1997:
- Initiate experiment to measure permeability of vadose zone gases in LYNER through the Joint Test Organization to look at transport pathways of interest to containment and to groundwater recharge. - Continued study of coupled thermal-chemical-mechanical code LYNX2D to insert into ALE3D code to establish a thermal-chemical-mechanical-hydrodynamic capability. - Continued development of methods for characterization of stockpile pits and to improve ability to project future changes in material properties, especially plutonium. - Continued tritium consolidation by moving SNL Tritium Research Lab's tritium function stations to LANL's Weapons Experimental Tritium Facility.	- SmartCeramics Project will continue the development of a 3D model for ceramic compaction to be used to improve the homogeneity of ceramic compacts and reduce defect formation. - Document pilot scale High Explosive disposal operations (biotreatment at Pantex, molten salt at LLNL). - Characterize the performance and sensitivity of aging explosives as part of continued surveillance of the enduring stockpile. - Support maintenance of technologies to clean up tritium-contaminated articles and to recover tritium. - Start decontamination of glove boxes at Tritium Salt Fabrication Facility.	- Continue to develop key advanced materials and/or manufacturing processes to enable use of new materials/processes to improve stockpile safety and reliability and reduce cost/cycle time. - Continue the development of non-invasive assay techniques for plutonium and uranium in storage and support design concepts to reduce worker exposure during storage operations. - Develop advanced optical firing technology prototype hardware support in support of enhanced safety. - Operate the Weapons Experimental Tritium Facility to meet programmatic needs and compliance with regulations and orders.

FUNDING LEVELS:

$58,631	$56,122	$54,680

CHEMISTRY AND MATERIALS: Research in materials synthesis and processing, determination of materials structure and composition, and development of functional properties in polymers, metals, ceramics, inorganic and organic materials, and composites. The specialized materials developed and used in nuclear weapons and their reliability requirements have created a unique set of materials science challenges. These activities are required to address the resolution of weapons aging and reliability issues, to support the remanufacture of stockpile components in a timely, cost effective, and environmentally benign way, and to enhance the reliability and surety of remanufactured components. Pertinent objectives include maintenance of engineering competence in this unique set of materials science, development of models to study aging phenomena, and development of low toxicity alternative materials to reduce environmental, safety and health concerns associated with weapons production, maintenance, and dismantlement.

MEASURABLE PERFORMANCE ACTIVITIES (Chemistry and Materials Science & Technology-Chemistry and Materials Details):

FY 1995:	FY 1996:	FY 1997:
- Accomplished Microalloying of uranium to control dynamic properties. - Technology was developed for slip-casting a toughened ceramic fit with very small pore size for control applications. - Established new selective sintering process device for rapid prototyping of plastic parts. - Initiate experiment to measure permeability of vadose zone gases in LYNER through the Joint Test Organization to look at transport pathways of interest to containment and to groundwater recharge. - Established that a cesium overlayer on diamond surfaces can lead to negative electron affinity and reaction with fluorine can stabilize the surface with respect to oxygen exposure; this result creates the potential for using diamond in electron emission devices.	- Develop techniques for depositing protective polymeric films on weapons components. - Continue research of interface science: modify the ductile rupture mechanism in Al/sapphire bonds by controlling void nucleation and growth kinetics, and develop multiscale materials models for the deformation of bcc and fcc metals. - Synthesize polymer-based materials with specific molecular receptor sites for selected types of metal ions. Show use of these materials as surface coatings for advanced chemical sensors, allowing the production of new generation sensor devices with improvements in sensitivity and selectivity. - SmartCeramics Project will continue the development of a 3D model for ceramic compaction to be used to improve the homogeneity of ceramic compacts and reduce defect formation.	- Develop the capability to accurately predict materials age related reliability problems in the stockpile. - Develop the knowledge and demonstrate the ability to synthesize and process materials with properties meeting design performance specifications with no adverse environmental impact and compatible with rapid prototyping and agile manufacturing. - Determine material properties and the range of values required to meet key performance requirements in weapons components and subsystems sufficiently to certify replacement materials. - Develop key advanced materials and/or manufacturing processes to enable use of new materials/processes to improve stockpile safety and reliability and reduce cost/cycle time.

FUNDING LEVELS:

$15,880	$15,175	$14,915

HIGH EXPLOSIVES: Activities involve fundamental physics and chemistry of explosive materials; characterization and modeling of explosive properties; improvement of firing technology; investigation of demilitarization technologies; and engineering of explosive component prototypes and their evaluation for weapons use. Achieving an optimal balance between safety and performance is the major goal of these activities which seek to provide more powerful insensitive high explosives (HE); highly resistant to unintentional detonation; detonation systems that offer improvements in safety; and answers to questions about the effects of aging on high explosives in stockpiled weapons.

MEASURABLE PERFORMANCE ACTIVITIES (Chemistry and Materials Science & Technology High Explosives Detail):

FY 1995:	FY 1996:	FY 1997:
- Continued development of equation of state (EOS) models describing detonation and reactive flow for the thermochemical code CHEETAH. - Continued study of coupled thermal-chemical-mechanical code LYNX2D to insert into ALE3D code to establish a thermal-chemical-mechanical-hydrodynamic capability. - Progressed in determining ignition and combustion properties of HMX-based explosives at elevated temperatures and pressures, and in evaluation of response of TATB-based explosives to abnormal mechanical stimuli. - Fired first Bigplate with point-detonated LX-14 pushing a copper plate with five velocimetry laser beams as diagnostics. - Obtained isothermal simultaneous themogravitmetry modulated beam mass spectrometry measurements on the decomposition of HMX in three salt mixtures and over range of temperatures.	- Document pilot scale HE disposal operations (biotreatment at Pantex, molten salt at LLNL). - Characterize properties of HMX- and TATB-based explosives: ignition, deflagration, and detonation mechanisms, thermal properties at elevated pressure, and response to mechanical stimuli for HMX and TATB-based explosives. - Develop enhanced safety optical firing through prototype hardware development. - Characterize decomposition kinetics at elevated temperatures and pressures for improved thermochemical codes. - Characterize the performance and sensitivity of aging explosives as part of continued surveillance of the enduring stockpile. - Validate PRET Table with cylinder and spherical shots. - Begin combination of CHEETAH with the new 1D hydrocode to make the first New Generation test hydrocode.	- Conduct assessment of HE (plasticizer/ binders, HE/IHE properties) from dismantled weapons in support of stockpile surveillance. - Develop advanced optical firing technology prototype hardware support in support of enhanced safety. - Conduct small-scale and large-scale experiments to isolate thermal, chemical, and mechanical responses; provide scaling data in support of computational model development. - Extend understanding of aging effects (initiation thresholds, thermal and mechanical effects on containment), begin characterization for predictive models. - Conduct system tests using damaged HE.

FUNDING LEVELS:

$6,240	$6,336	$6,265

SPECIAL NUCLEAR MATERIALS: Advanced and automated plutonium processing, casting, dynamic plutonium testing, and machining technologies. This research supports an enhanced understanding of the physical, mechanical, chemical and thermodynamic properties of the actinides. Understanding actinide properties is fundamental to the development of environmentally benign fabrication, disassembly, handling, and storage capabilities. Continued development of these process technologies will improve weapon safety, facilitate monitoring as the stockpile ages, and reduce both waste generation and worker exposure.

MEASURABLE PERFORMANCE ACTIVITIES (Chemistry and Materials Science & Technology-Special Nuclear Materials):

FY 1995:	FY 1996:	FY 1997:
- Utilized critical assemblies to qualify and calibrate alarms for material handling problems, to calibrate dosimetry, and to improve safeguards assay techniques. - Maintained the capability to perform experiments for determination of the state and material response of plutonium. - Developed methods for characterization of pits in the continuing stockpile and improved ability to project future changes in material properties. - Developed non-invasive assay techniques for plutonium and uranium in storage and supported design concepts to reduce worker exposure during storage operations. - Performed experiments at the Los Alamos Critical Experiments Facility.	- Maintain the capability to perform experiments for determination of the state and material response of plutonium. - Develop methods for characterization of pits in the continuing stockpile and improve ability to project future changes in material properties, especially plutonium. - Develop non-invasive assay techniques for plutonium and uranium in storage and support design concepts to reduce worker exposure during storage operations. - Initiate preliminary design for phase II of the CMR building improvement project. - Perform experiments at the Los Alamos Critical Experiments Facility.	- Continue operational support of the project to improve the Chemistry and Metallurgy Research Building. - Maintain the capability to perform experiments for determination of material response of plutonium, including equation of state type experiments. - Develop methods for characterization of pits in the continuing stockpile and continue to improve ability to project future changes in material properties, especially plutonium, as the stockpile ages. - Continue the development of non-invasive assay techniques for plutonium and uranium in storage and support design concepts to reduce worker exposure during storage operations. - Perform experiments at the Los Alamos Critical Assembly Facility.

FUNDING LEVELS:

$27,511	$28,361	$27,380

TRITIUM: Material science research relevant to the production, disassembly, handling, and use of tritium and its compatibility with other materials and components. There are currently four broad areas of study in tritium research: gas transfer systems, solid storage systems, neutron generator tubes, and inertial fusion targets. Tritium is an essential material in nuclear weapons and a proposed fuel for inertial fusion targets. The design, production, and fielding of gas transfer systems involve issues in material characterization, performance modeling, and aging phenomena.

MEASURABLE PERFORMANCE ACTIVITIES (Chemistry and Materials Science & Technology Tritium Detail):

FY 1995:	FY 1996:	FY 1997:
- Consolidated tritium inventories by moving SNL Tritium Research Lab's tritium function stations to LANL's Weapons Experimental Tritium Facility (WETF)	- Operate the Weapons Experimental Tritium Facility to meet programmatic needs and compliance with regulations and orders	- Perform experiments at LANL's Weapons Experimental Tritium Facility to meet Stockpile Stewardship programmatic needs.
- Successfully operated new tritium gathering system to clean up tritium contamination that avoids creation of tritiated water	- Support maintenance of technologies to clean up tritium-contaminated articles and recover tritium in the most efficient methods possible	- Support maintenance of technologies to clean up tritium-contaminated articles and recover tritium in the most efficient methods possible.
- An Acorn boost system loading manifold has been designed and constructed at the WETF	- Start decontamination of glove boxes at Tritium Salt Fabrication Facility	

FUNDING LEVELS:

$9,000	$6,250	$6,120

CORE STOCKPILE STEWARDSHIP

TESTING CAPABILITIES AND READINESS: The original and still primary purpose of the Nevada Test Site is to provide a continental site for nuclear weapons testing. Current Presidential direction is to maintain a readiness capability to conduct an underground nuclear test at the NTS. Infrastructure appropriate to this requirement is to be maintained as well as those measures necessary to assure continued environmental, health related, public safety, and physical protection. Presidential direction also indicates that resources should be included that are necessary to conduct experimental activities planned by the nuclear weapon design laboratories and appropriate to the national nuclear test policy, such as stockpile stewardship high explosive driven experiments. Annual maintenance of readiness activities include maintenance of physical infrastructure including buildings and structures, electrical power transmission and distribution power lines, roadways, environmental and security activities, water wells and associated supply and distribution lines, and electronic communications systems including computers, alarms, and telephone system; and general site security including onsite law enforcement, intruder prevention and interception, and real property protection. Capital equipment and general plant projects funding necessary to support this activity are included in this category.

PROGRAM GOALS:

- Maintain the infrastructure of the Nevada Test Site to allow its use by various Department of Energy programs,
- Maintain the skills, technologies, and environment, safety and health certifications necessary to allow a resumption of underground nuclear testing, per Presidential direction,
- Support the conduct of experiments at the Nevada Test Site which provide benefit to the ongoing laboratory stockpile stewardship programs while helping to maintain the NTS readiness posture

CHANGE FROM FY 1996:

Funding decrease from FY 1996 to FY 1997 reflects ongoing efforts to identify operational savings at NTS. Savings from contractor consolidation in FY 1995/96 are reflected in the requested funding levels.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Completed Lyner. Designed a 3rd Lyner experiment for FY 1996. Conducted Kismet, a containment characterization experiment, and Kuchen, a nuclear test readiness experiment/exercise. - Conducted two offsite field exercises as readiness training. -Defined and planned a hydrodynamic stockpile assessment experiment to be conducted in FY 1996	- Four high explosive experiments with special nuclear material are planned to be supported by DOE/NV and the integrated contractor to prove capability to conduct a nuclear test and provide needed stockpile stewardship data. - All archived data and procedures will be reviewed. Equipment not in use will be mothballed and stored. Survey instruments will continue to be calibrated and maintained in a state of readiness.	- Experiments to demonstrate and exercise capability will continue. - Identify and record skills and knowledge necessary to maintain capability to resume testing. - This category provides funding for the Nevada Test Site contractors to support laboratory experimental activities at the Nevada Test Site. Laboratory activities are funded within other Stockpile Stewardship categories.

FUNDING LEVELS:

$180,687	$167,444	$162,525

LABORATORY CAPITAL EQUIPMENT is required by the three national laboratories to maintain the capabilities necessary for stockpile maintenance, safety activities, and laboratory site infrastructure. Funding in this category supports multiple laboratory programs or is of a basic infrastructure nature and therefore cannot be allocated to other Stewardship operations and maintenance categories.

FUNDING LEVELS:

$51,820	$58,555	$57,250

GENERAL PLANT PROJECTS are low cost construction projects (less than $2 million) required to maintain the infrastructure and ongoing Stockpile Stewardship programs of the three laboratories. Funding for Nevada Test Site general plant projects is included in the Testing Capabilities and Readiness category. Although funded as an operations and maintenance expense, these projects are generally not appropriately allocated to specific program mission lines.

FUNDING LEVELS:

$4,500	$7,500	$7,320

CONSTRUCTION LINE ITEMS: There are two new infrastructure revitalization subprojects included in the FY 1997 request, both within 96-D-102, Stockpile Stewardship Facilities Revitalization, Phase VI. **Real Property Protection, Phase I,** (TEC $7.8 million), is the first in a series of projects to repair and replace roofs at Lawrence Livermore National Laboratory. The **138 kV Substation Modernization** (TEC $28.149 million) is currently scoped to upgrade the current electrical circuit at the Nevada Test Site. The first year funding will be used to provide engineering design to ensure the final scope of the project is consistent with ongoing NTS missions including readiness to resume underground testing. It is anticipated that the completion of the engineering and the scope review will allow actual construction of significant portions of the project to be put off indefinitely pending actual direction to resume testing.

Starting in FY 1997 the **Dual-Axis Radiographic Hydrotest Facility** at Los Alamos National Laboratory has been removed as a subproject within project 88-D-106, Nuclear Weapons Research, Development & Testing Facilities Revitalization, Phase II. The new stand alone line item, 97-D-102, will contain the entire scope of the project as outlined in the record of decision to the environmental impact statement (EIS) completed in FY 1995. In addition to the project scope previously included in 88-D-106, the new line item will also include the second radiographic arm of the facility and phased environmental containment of the firing site. However, due to the ongoing injunction against continuing construction efforts pending judicial review of the EIS, no new funds are requested in FY 1997. Any allowable activities will use funds previously appropriated for the project. Additional information can be found in the construction project data sheet.

Detailed information on construction line items can be found in the Construction Data Sheets following the budget narrative.

FUNDING LEVELS:

$76,629	$82,305	$88,337

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE PROGRAMS
PROJECT DATA SHEETS

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Core Stockpile Stewardship

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WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project:	Dual-Axis Radiographic Hydrodynamic Facility (DARHT) Los Alamos National Laboratory, Los Alamos, New Mexico	2a. Project No. 97-D-102 2b. Construction Funded

SIGNIFICANT CHANGES

- On January 26, 1995, an injunction was issued by the U.S. District Court, Albuquerque, New Mexico. All project activities were ceased.
- An Environmental Impact Statement (EIS) and Record of Decision (ROD) (October 1995) were issued in response to the injunction.
- The project scope has been redefined to include the preferred option of the EIS. As a result, the total estimated cost (TEC) increased from $81,400,000 to $105,700,000 and the total project cost (TPC) increased from $85,600,000 to $114,760,000. Project scope increases are:
  - Phased Containment
  - Increase in accelerator energy and X-ray dose production
  - Improved diagnostics
- This project was formerly a subproject of line item 88-D-106. The scope of the 88-D-106 plus the revisions identified in the EIS and ROD are combined into this new project to provide clearer visibility.

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Weapons Stockpile Stewardship

1. Title and Location of Project: Dual-Axis Radiographic Hydrodynamic Facility (DARHT)
Los Alamos National Laboratory, Los Alamos, New Mexico

2a. Project No. 97-D-102
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 3rd Qtr. FY 1988

3b. A-E Work (Titles I & II) Duration: 36 months

4a. Date Physical Construction Starts: 3rd Qtr. FY 1989

4b. Date Construction Ends: 1st Qtr. FY 1999

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $81,400
Total Project Cost (TPC) -- $85,600

6. Current Cost Estimate:
TEC -- $105,700 a/b/
TPC -- $114,760

7. Financial Schedule (Federal Funds): b/

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1988	$ 1,800	$ 0	$ 1,800	$ 201
1989	9,700	0	9,700	2,912
1990	15,760	(4,855) c/	10,905	10,767
1991	16,800	(11,800) d/	5,000	7,558
1992	0	0	0	5,139
1993	0	3,500 e/	3,500	2,643
1994	17,000	0	17,000	5,881
1995	17,000	0	3,000	6,159
1996	16,495	0	19,495	10,000
1997	0	0	11,000	25,450
1998	24,300	0	24,300	23,990
1999	0	0	0	5,000

This data sheet details project scope changes resulting from implementation of the project's Environmental Impact Statement, Record of Decision (EIS/ROD). However, no new funding is requested for this project in FY 1997. Prior year funds previously appropriated to this project (then a subproject within 88-D-106) and being held in a Headquarters reserve account pending completion of the judicial review of the projects ROD and EIS, is sufficient to support FY 1997 construction activity.

a/ Cost estimates include work scope for DARHT subproject 88-D-106 plus increased scope of first phase of firing site containment and enhancements to first accelerator arm capabilities and diagnostics.

b/ Funds appropriated in 1988-1996 are from the DARHT subproject 88-D-106 and are being moved to 97-D-102 to support management and monitoring of the project.

c/ Reflects the sequestration of funds for FY 1990 and the FY 1990 Omnibus reprogramming approved by appropriation subcommittees.

d/ Reflects the FY 1991 Omnibus reprogramming approved by Congressional subcommittees.

e/ $3,500,000 redirected from prior year appropriation from Dormitories subproject of line item 88-D-106 at the Nevada Test Site (NTS).

1. Title and Location of Project: Dual-Axis Radiographic Hydrodynamic Facility (DARHT) Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 97-D-102 2b. Construction Funded

8. Project Description, Justification, and Scope

The Dual-Axis Radiographic Hydrotest Facility (DARHT) project was previously submitted to Congress as a subproject of the Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase II project (88-D-106). With the virtual completion of the remaining ten subprojects in 88-D-106, the DARHT effort is being submitted as a stand-alone project so that it can be more readily managed, monitored and funded.

The Financial Schedule includes the federal funds required for the first phase of the project to implement the Department's Record of Decision (ROD) released in October 1995 at the conclusion of the facility's Environmental Impact Study process. (Description of project phases begins on following page). Completion of the first phase of the project will provide an initial operating capability; however, DOE intends to eventually operate DARHT in a dual axis mode. Additional outyear funding will be requested upon determination of the cost optimum funding profile for Phases 2 and 3. This budget submission reflects the project required to begin implementation of the Department's decision with respect to DARHT, but expenditure of any funds, including prior year appropriations, will not begin until the federal court injunction against the project is dissolved as a result of the judicial review of the EIS and ROD that is now underway. Once the injunction is dissolved, it is estimated that prior year funding will be adequate to carry the project through FY 1997, therefore, no funding is being requested for FY 1997.

Project History Leading to Current Project Scope

Originally the project included two 16-MeV electron-beam accelerators producing x-rays. In FY 1990, the Department decided to defer construction of the Hydrotest Firing Site pending completion of technology development verified by the test results from an Integrated Test Stand. The Integrated Test Stand consists of about 30 percent of one x-ray machine per the current LANL design (no funds were requested in FY 1992 and FY 1993). Following the successful ITS test results, development and construction of the hydrotest firing site was re-scoped based on the recommendations of two independent "Blue Ribbon" review committees assembled to assist the Department of Energy (DOE) in enhancing the development of a vital hydrotest capability. The new scope provided for the development, procurement, and installation of the first of two 16-MeV flash x-ray machines (for dual-axis radiography) at the firing site; and construction of a weatherproof building to house the dual-axis radiographic systems and supporting calibration activities. Construction was resumed in FY 1994.

On January 26, 1995, an injunction was issued for this project by the United States District Court for the District of New Mexico, requiring a cessation of all actions associated with the DARHT construction project, including any construction, procurement, design, or any furtherance of the DARHT project pending completion and judicial review of an EIS and ROD. In response, the Department ceased all project activities and has completed an EIS for this project. A ROD was published in October 1995. The preferred option selected is to complete the project and operate the DARHT facility with the use of steel containment vessels. This containment option includes multiple phases to eventually obtain at least 75 percent reduction in the emissions from high-explosives testing when compared to the DARHT Baseline Alternative analyzed in the EIS.

The DARHT project is hereby redefined to comply with the Record of Decision (ROD) preferred alternative subdivided into three phases. The first phase, most of which has been in progress since FY 1988, consists of the construction of a Radiographic Support Laboratory (RSL) and a Hydrotest Firing Site (HFS), to include the first of two flash x-ray machines. Also included in this phase is the initial stage of containment of emissions from the high-explosives experiments to be conducted at the facility, accelerator energy is increased from 16 to 20 MeV, accelerator changes to generate higher electron-beam currents, and improved diagnostics are included. The second phase will include the second flash x-ray machine as well as the second stage of increased containment of testing emissions. The third phase consists of the third and final stage of increased containment of testing emissions. Each of the three phases of the DARHT project are described in greater detail below.

8. Project Description, Justification, and Scope (Continued)

Phase 1

Phase 1 scope includes the building housing the two firing arms and laboratories, the first of the two firing arms, and the first phase of firing site containment.

Radiographic Support Laboratory (RSL)

The RLS has been completed, is now fully operational and is fulfilling its intended role in the development of the flash x-ray machines to be installed at the hydrotest firing site.

The RSL provides an appropriate building for the development, calibration, and maintenance of high energy hydrotest x-ray machines. This laboratory contains a radiographic machine room and adjacent control room, a laser assembly room, and a staff shop. Additionally, this facility includes space for a machine shop, offices, inspection room, and required toilets. A mezzanine containing approximately 5,385 square feet is also included. The building contains approximately 20,750 square feet.

The building has a structural steel space frame, bar joists, and a standing seam metal roof. The exterior walls of the building are clad with insulated metal panels. Interior walls and partitions include concrete masonry units and metal studs with gypsum board.

The radiographic machine room includes support equipment for x-ray machine development and calibration. A 10-ton capacity bridge crane is provided in the machine room and the machine shop includes a 5-ton capacity bridge crane. In order to protect operating personnel from radiation produced in the radiographic machine room, a full-height shield wall of reinforced concrete is provided.

Fire protection is provided throughout by a hydraulically designed automatic sprinkler system. Plumbing and process piping includes hot and chilled circulating air, potable hot and cold water, industrial cold water, sanitary sewer, compressed air, natural gas, sulfur-hexaflouride gas, transformer oil, and low-conductivity water systems. An air-cooled cold water generator provides chilled water for cooling; hot water is provided by a boiler. These are used to heat and cool the building. Two above-ground, 10,000 gallon, oil storage tanks are located outside but adjacent to the pit in the machine room.

The utility work for the building includes extension of electricity, water, and gas; removal and relocation of sewage system; and extension of communications. Standard equipment will include office furniture, shop equipment and tools, and two bridge cranes.

The indoor facility allows generator optimization studies, the purpose of which are to improve the generator x-ray quality. In addition, new pulsed-power measuring and calibrating test stands included in this facility allow pulsed-power system components to be studied individually. The radiographic systems facility is used to test new concept prototypes. The new facility improves the repair speed, reliability, and future quality of the flash x-ray generators used to diagnose weapons hydrotests. This increases the utility and effectiveness of hydrotest measurements.

In addition to the pulsed-power area, this building includes space for a mechanical fabrication branch machine shop, which will consolidate the branch shop in one area.

1. Title and Location of Project: Dual-Axis Radiographic Hydrodynamic Facility (DARHT) Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 97-D-102 2b. Construction Funded

8. Project Description, Justification, and Scope (Continued)

Hydrotest Firing Site

Phase 1 provides for the development, procurement, and installation of the first of two flash x-ray machines (for dual-axis radiography) at the firing site; procurement and installation of state-of-the-art hydrodiagnostic instrumentation at the firing site; construction of a blastproof building to house the dual-axis radiographic systems and supporting calibration activities.

The complete Hydrotest Firing Site building will be constructed as part of this phase, as will the first x-ray machine and all electronic and optical diagnostics. The second machine, necessary to complete the essential dual-axis configuration of the facility, will be built in a sequential manner (Phase 2), allowing it to take advantage of engineering and scientific advances that may occur before its construction. The first machine will be a state-of-the-art linear induction accelerator, producing an electron beam of approximately 20-MeV that will be converted into an x-ray beam. In addition to the increase in beam energy from 16 MeV to 20 MeV, the use of a photocathode and higher current beam magnets will be added to significantly improve the radiographic performance. A high speed electronic data acquisition system, a firing site control system, and optical imaging systems will also be included. Optical instrumentation will include high-speed framing and streak cameras and laser velocity interferometers. To improve the diagnostics capability of this facility, a gamma-ray camera will be included.

A two-level, 38,200-square-foot building to house and operate both accelerators will be constructed. The walls and roof will be designed to shield personnel operating the facility from the radiation produced by the accelerators, as well as to resist blast forces resulting from the detonation of explosives. The accelerators will be located on a three foot thick concrete slab on grade. Each accelerator room will contain approximately 11,875 square feet and will be equipped with a 10-ton capacity bridge crane. Completion of the complete building for both x-ray machines allows installation of the second machine (Phase 2) to take place without stopping hydrodynamic testing activities that would begin upon installation of the first machine.

The power supply rooms will provide space adjacent to the accelerators for electrical equipment that serves the accelerators. These rooms will be equipped with three ton capacity bridge cranes. The detection chamber will be electromagnetically shielded. Adjacent to the detection chamber will be the control room, a cable room, a capacitor discharge unit (CDU) room, and a computer room. The detection chamber, computer room and accelerator control room will also be provided with an access flooring system. Other rooms will include an optical room, an analyzer room, a Fabry Perot room, a laser illumination room, an assembly room, toilets, and mechanical/electrical equipment room. This area will contain approximately 26,325 square feet.

Fire protection will be provided throughout by a hydraulically designed foam/water automatic sprinkler system. Plumbing and process piping will include hot and chilled circulating water, potable hot and cold water, industrial cool water, sanitary sewer, compressed air, natural gas, transformer oil, and low-conductivity water systems. A boiler and two chillers will be included to provide hot and cold water. This conditioned water will be used for heating, ventilating, and air-conditioning the building, with the exception of the detection chamber and accelerator control room, which will be serviced with "computer-type" units. Two above-ground, 12,000 gallon oil storage tanks, a cooling tower, and an electrical substation will be required. Power will be supplied to the building from an existing 13.2 Kv line. The building will be equipped with communication systems that will include telephone, intercom, and broad band communications.

Site work will include a new asphalt surfaced access road, an asphalt surfaced circulation road and parking area, surface drainage, and erosion control. Utilities to be extended to the site will include natural gas, water, electrical power, and communication services. A septic tank and seepage pit will be provided to handle the sanitary sewage. Standard equipment will include office furnishings and work benches and storage shelving.

1. Title and Location of Project: Dual-Axis Radiographic Hydrodynamic Facility (DARHT) Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 97-D-102 2b. Construction Funded

8. Project Description, Justification, and Scope (Continued)

For Phase 1 a prototype vessel system and a portable cleanout unit will be fabricated to obtain the initial 5 percent reduction in testing emissions when compared to the DARHT Baseline Alternative analyzed in the EIS for the first five-year period of facility operation. The prototype vessel system includes several large, steel vessels that would be assembled to realize a containment structure inside of which some of the high-explosives experiments would be conducted. Also included is the necessary equipment to handle and transport the vessel system.

Phase 2

Included in DARHT Phase 2 will be the second electron beam accelerator to be installed in the second accelerator hall provided in Phase 1. The second machine, necessary to complete the essential dual-axis configuration of the facility, will be built in a sequential manner, allowing it to take advantage of engineering and scientific advances that may occur before its construction. The second machine may be a more advanced accelerator or incorporate another advanced technology that offers significant cost, schedule, or performance advantages. Completion of the high-explosives containment strategy would also be provided as part of this phase.

Based on the experience gained during Phase 1 containment efforts, a permanent vessel cleanout facility will be constructed and put into operation. Five vessels and additional vessel segments will be fabricated as justified by operational experience. A reduction in testing emissions of at least 40 percent when compared to the DARHT Baseline Alternative analyzed in the EIS would be realized during the second five-year period of facility operation. Containment goals would be met or exceeded through the use of a combination of techniques: containment, material replacement, post-shot recovery, and program management.

Phase 3

Experience gained during Phase 1 and 2 will allow the final containment techniques to be implemented that would result in at least 75 percent reduction in testing emissions when compared to the DARHT Baseline Alternative analyzed in the EIS for the remaining years of facility operation. The Department of Energy (DOE) will meet the release reduction goals of this phase through the use of the combination of techniques discussed above. The decision to possibly further reduce testing emissions by developing a vessel system capable of containing a 440-lb (200-kg) charge will be made during this phase. No additional funding would be required for Phase 3 unless a decision to develop the 440-lb (200-kg) vessel is made.

Since its inception in 1988, the DARHT project has been recognized as a key link in DOE efforts to maintain the quality and reliability of the nuclear weapons stockpile. Historically, radiographic hydrodynamic tests and dynamic experiments have been a requirement to support the DOE (and predecessor agencies) mission; they remain for future efforts such as the Stockpile Stewardship and Management (SS&M) Program and assist in the understanding and evaluation of nuclear weapon performance. Dynamic experiments are used to gain information on the physical properties and dynamic behavior of materials used in nuclear weapons, including changes due to aging. Hydrodynamic tests are used to obtain diagnostic information on the behavior of a nuclear weapons primary (using simulated materials for the fissile materials in an actual weapon) and to evaluate the effects of aging on the nuclear weapons remaining in the greatly reduced stockpile. The information that comes from these types of tests and experiments cannot be obtained in any other way.

The DOE existing capability to obtain diagnostic information was designed and implemented at a time when the organization could rely on direct observations of the results of underground nuclear tests to provide definitive answers to questions regarding nuclear weapons performance. Without the ability to verify weapons performance through nuclear tests, some remaining diagnostic tools are inadequate by themselves to provide

1. Title and Location of Project: Dual-Axis Radiographic Hydrodynamic Facility (DARHT) Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 97-D-102 2b. Construction Funded

8. Project Description, Justification, and Scope (Continued)

sufficient information. Accordingly, as the Nation moves away from nuclear testing, DOE must enhance its capability to use other tools to predict weapons safety, performance, and reliability. In particular, DOE must enhance its capability to perform hydrodynamic experiments to assess the condition and behavior of nuclear weapons primaries.

Although the current U.S. stockpile is considered to be safe and reliable, the existing weapons are aging beyond their initial design lifetimes and, by the turn of the century, the average age of the stockpile will be older than at any time in the past. To ensure continued confidence in the safety and reliability of the U.S. nuclear weapons stockpile, DOE needs to improve its radiographic hydrodynamic testing capability as soon as possible. Uncertainty in the behavior of the aging weapons in the enduring stockpile will continue to increase with the passage of time because existing testing techniques, by themselves, are not adequate to assess the safety, performance, and reliability of the weapons primaries. Should DOE need to repair or replace any age-affected components, retrofit existing weapons, or apply new technologies to existing weapons, existing techniques are not adequate to assure weapons safety and reliability. In an era without nuclear testing DOE believes that it is probable that the existing weapons will require these types of repairs or retrofits in the foreseeable future. DOE has determined that no other currently available advanced techniques exist that could provide a level of information regarding nuclear weapons primaries comparable to that which could be obtained from enhanced radiographic hydrodynamic testing.

In addition to weapons work, DOE uses its radiographic testing facilities to support many other science missions, and needs to maintain or improve its radiographic testing capability for this purpose. Hydrodynamic tests and dynamic experiments are important tools for evaluating conventional munitions; for studying hydrodynamics, materials physics, and high-speed impact phenomena, and for assessing and developing techniques for disabling weapons produced by outside interests.

Without providing "facilities" such as the DARHT hydrotest firing site, the U.S. risks losing its superiority in nuclear weapons technologies and safety.

1. Title and Location of Project: Dual-Axis Radiographic Hydrodynamic Facility (DARHT)
Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)

2a. Project No. 97-D-102
2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 25,259
(1) Engineering design and inspection at approximately 27.9 percent of construction costs, (Design, Drawings, and Specifications)	$ 20,508	
(2) Construction management costs	0	
(3) Project management at 6.5 percent of construction costs (Item c).	4,751	
b. Land and land rights		0
c. Construction costs		73,434
1. Improvements to land	0	
2. Buildings	19,304	
3. Special equipment	54,130	
4. Utilities	0	
5. Demolition	0	
d. Standard equipment		113
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance f/		0
h. Subtotal (a through g)		$ 98,806
i. Contingencies at approximately 7.0 percent of above costs		6,894
j. Total line item cost (Section 11.a.1.(a))		$105,700
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$105,700

10. Method of Performance

Design and procurement of the conventional facilities will be performed under negotiated architect-engineer contracts. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

f/ Included with ED&I (a(1)).

1. Title and Location of Project: Dual-Axis Radiographic Hydrodynamic Facility (DARHT)
Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)

2a. Project No. 97-D-102
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 35,101	$ 6,159	$ 10,000	$ 25,450	$ 28,990	$105,700
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	1,105	0	0	0	0	1,105
(d) Inventories	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 36,206	$ 6,159	$ 10,000	$ 25,450	$ 28,990	$106,805
2. Other project costs						
(a) R&D necessary to complete project	$ 1,471	$ 0	$ 0	$ 0	$ 2,824	$ 4,295
(b) Conceptual design costs	200	0	0	0	0	200
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	2,960	0	0	0	2,960
(e) Other project related costs	0	0	0	0	500	500
(f) Total other project costs	1,671	2,960	0	0	3,324	7,955
(g) Total project costs	$ 37,877	$ 9,119	$ 10,000	$ 25,450	$ 32,314	$114,760
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project costs	$ 37,877	$ 9,119	$ 10,000	$ 25,450	$ 32,314	$114,760

b. Related annual costs (estimated life of project--30 years)	
1. Facility operating costs	$ 4
2. Facility maintenance and repair costs	4
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	2
7. Other costs	0
Total related annual costs	$ 10

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1. Title and Location of Project: Dual-Axis Radiographic Hydrodynamic Facility (DARHT) Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 97-D-102 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item -- Construction line item costs for the engineering design, procurement, demolition, and construction are estimated to be $105,700 for Phase 1 only.
   (b) PE&D -- None.
   (c) Operating expense funded equipment -- This equipment is necessary to conduct the research and development (R&D).
   (d) Inventories -- None.

2. Other project costs
   (a) R&D necessary to complete construction -- Funded R&D costs are necessary to complete the equipment and vessel design.
   (b) Conceptual design -- Approximately $200,000 was incurred to establish the specific design and construction features for Phase 1 only.
   (c) Decontamination and Decommissioning (R&D) -- There are no D&D costs associated with this project.
   (d) NEPA documentation costs -- This is the costs of the DOE contractors, including Los Alamos National Laboratory, to support or prepare the EIS.
   (e) Other project related funding -- This is the cost for facility start-up including the Readiness Assessment.

b. Total related funding requirements

1. Facility operating costs -- The associated overhead for facility operating costs are to be determined.
2. Facility maintenance and repair costs -- The annual costs for direct labor, materials and supplies, and associated overhead for maintenance and repair activity are to be determined.
3. Programmatic operating expenses directly related to the facility -- These costs are to be determined.
4. Capital equipment not related to construction but related to the programmatic effort of the facility -- None.
5. GPP or other construction related to the programmatic effort -- None.
6. Utility costs -- These costs are to be determined.
7. Other Costs -- None.

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1. Title and Location of Project: Nuclear Weapons Stockpile Stewardship Facilities Revitalization, Phase VI, Various Locations	2a. Project No. 96-D-102 2b. Construction Funded

SIGNIFICANT CHANGES

- The TEC was increased from $33,700,000 to $69,659,000 and the TPC from $34,660,000 to $70,748,000 because the following two subprojects were added:

  - 138kV Substation Modernization, NTS
  - Roof Replacement -- Protection of Real Property, LLNL

- Construction end date changed from 4th Qtr. FY 1999 to 1st Qtr. FY 2002.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project: Nuclear Weapons Stockpile Stewardship
Facilities Revitalization, Phase VI, Various Locations

2a. Project No.: 96-D-102
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 46 Months

4a. Date physical Construction Starts: 3rd Qtr. FY 1997

4b. Date Construction Ends: 1st Qtr. FY 2002

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $33,700
Total Project Cost (TPC) -- $34,660

6. Current Cost Estimate:
TEC -- $69,659
TPC -- $70,748

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1996	$ 2,520	$ 0	$ 2,520	$ 2,200
1997	19,250	0	19,250	13,100
1998	17,360	0	17,360	20,570
1999	13,680	0	13,680	13,940
2000	9,800	0	9,800	6,700
2001	7,049	0	7,049	13,149

8. Project Description, Justification and Scope

The TEC was increased from $33,700,000 to $69,659,000 and the TPC from $34,660,000 to $70,748,000 because two subprojects were added: 138kV Substation Modernization at NTS and the Roof Replacement -- Protection of Real Property at LLNL.

This series of projects provides for the construction of new facilities, and modifications, relocations, and additions to existing facilities for the Nuclear Weapons Stockpile Stewardship facilities at Sandia National Laboratories (SNL), Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL) and the Nevada Test Site (NTS). These projects are a multiyear capital investment program to provide new or additional capabilities or capacities to revitalize the Nuclear Weapons Stockpile Stewardship complex. These new and modified facilities will replace or add to existing facilities that are overaged, deteriorated, overcrowded, or are inadequate to preserve capabilities required for the current and future weapons stockpile stewardship program.

The Nuclear Weapons Stockpile Stewardship program is made up of a highly complex set of activities extremely dependent on current and advanced technology facilities and equipment to meet its varied needs. The successful performance of the Stockpile Stewardship program contributes directly to the quality and reliability of the nuclear weapons stockpile. In addition to unremitting requirements for reliability and performance, we are committed to pursue new safety and safeguards features for the enduring stockpile. These standards require innovative physics concepts and designs, the development of new materials and material applications, and extension of both engineering and manufacturing technologies beyond the current "state-of-the-art."

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8. Project Description, Justification and Scope (Continued)

The revitalization effort was initiated in FY 1984 with Project 84-D-107, Nuclear Testing Facilities Revitalization, and was followed in FY 1985, FY 1988, FY 1990, FY 1992 and FY 1994 by follow-on phases. These projects were defined based on needs identified by representatives from the Albuquerque and Nevada Field Offices, and the three weapons laboratories. Since the initiation of these projects, all aspects of the laboratory complex capital asset base continued to be critically reviewed and have resulted in the initiation of this line item project which contains four subprojects.

The consolidation of the Nuclear Weapons Stockpile Stewardship revitalization needs into one project data sheet focuses the issue of the total needs of the Stockpile Stewardship program. With the decreased demand for new weapon systems, this project is oriented toward preserving the critically needed infrastructure at LANL, NTS, and LLNL.

FY 1997 funds will be used to start engineering and design of subprojects 03 and 04 and to begin construction of all subprojects 01, 02, and 04.

Details on FY 1996 and FY 1997 new start subprojects which require funding in FY 1997 and beyond are provided below.

a. Utilities/Infrastructure Support Facilities, Various Locations

These subprojects cover general purpose facilities at various DOE locations that are an integral part of the installation support infrastructure. Included are basic utility systems, such as electrical power distribution, sewage, roads, parking lots, gas distribution, water supply, and the like. Many of these systems were constructed during the 1940s to World War II specifications with a 10-year maximum life expectancy. Many of them are now deteriorated beyond economic repair and do not meet present-day standards for safety and environmental protection.

Subproject 01 - Water Well Replacement, LANL, Los Alamos, New Mexico

TEC	Previous	FY 1996	FY 1997	FY 1998	FY 1999	Outyear	Construction Start - Completion Dates
$16,800	$0	$1,000	$10,200	$4,500	$1,100	$0	3rd Qtr. FY 1997 - 4th Qtr. FY 1999

This project is to provide four new 800-GPM, moderate yield, low-drawdown, production wells to replace six existing marginal or nonproducing wells located in the Guaje Well Field. The major components of work for each well location will include the following items: drilling, casing, and development of an approximately 2,000-foot deep well; a new deep well pump at the developed head, a new well house with roof hatch access, lights, heat and ventilation; discharge piping with flow meter, check valve and manual block valves to connect to existing distribution system; electrical power from existing overhead system; control scheme compatible with existing system; security fencing around the well house and a section of access road connecting with the existing Guaje Road.

After the new wells are completed and on line, six existing wells will be taken out of service and the well, pump, pump house and all related site improvements will be removed and salvaged. All disturbed areas will be reseeded to match the natural surroundings.

This project is necessary to meet historical and fire protection water demand and to ensure a continuous and reliable water supply to the Laboratory. The majority of the Guaje wells were completed in 1950-1952 and do not meet the original capacity of 500 GPM due to pump deterioration, down-hole mineral deposits, and related well damage.

The Guaje Field is an integral part of a three-well field system that supplies potable and fire protection water to the Laboratory.

1. Title and Location of Project: Nuclear Weapons Stockpile Stewardship
Facilities Revitalization, Phase VI, Various Locations (Continued)

2a. Project No.: 96-D-102
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

If this project is not funded, the capacity of the water system will continue to decline, resulting in capacity levels below the demands of the system. During peak summer demand periods, severe water usage curtailment measures would need to be implemented to avoid reducing the fire protection storage below allowable levels.

Subproject 02 - Fire Protection Improvements, LANL, Los Alamos, New Mexico

TEC	Previous	FY 1996	FY 1997	FY 1998	FY 1999	Outyear	Construction Start - Completion Dates
$16,900	$0	$1,520	$5,050	$5,450	$4,880	$0	4th Qtr. FY 1997 - 4th Qtr. FY 1999

The purpose of this subproject is to provide improvements to water storage capabilities in selected Technical Areas, and associated distribution system piping to connect the new tanks to the existing system. An additional Technical Area will receive distribution lines from an existing water storage tank. Approximately 28 buildings will receive improvements to internal sprinkler and/or fire alarm systems. Approximately 144 buildings will receive lightning protection systems or additions to existing systems.

Included in this subproject is a 1,500,000 gallon ground storage tank, a 750,000 gallon storage tank, a 150,000 gallon storage tank, two 100,000 gallon storage tanks, 25,500 feet of related distribution line piping, and related pumps and tie-ins to existing components of the existing system.

This project provides upgrades of the water system serving LANL and upgrades or new sprinkler and/or fire alarm systems in existing buildings in order to meet "improved risk" criteria from DOE Orders 6430.1A and 5480.7. These two orders mandate compliance with National Standards and are a proactive posture for loss prevention depending on the contents of the facilities and their importance to program requirements.

The water and sprinkler system deficiencies were identified in the 1976 Factory Mutual Survey and cited again in the 1989 Factory Mutual Survey. In addition to the Factory Mutual Surveys, six major deficiencies were cited in the DOE-wide Tiger Team Audit of 1991.

The majority of the water supply system for LANL was installed in the 1950's. As additional requirements were placed upon the system due to increased program needs, the distribution lines have been extended. The water storage and supply have not been improved to meet the requirements.

The following is a new subproject that was not included in the FY 1996 Congressional data sheet.

Subproject 03 - 138kV Substation Modernization, NTS, Las Vegas, Nevada

TEC	Previous	FY 1996	FY 1997	FY 1998	FY 1999	Outyear	Construction Start - Completion Dates
$28,149	$0	$0	$1,000	$2,600	$7,700	$16,849	1st Qtr. FY 1999 - 1st Qtr. FY 2002

Presidential direction to the Department is to maintain an ability to return to underground nuclear testing at the Nevada Test Site within 2-3 years of direction to do so. The existing power supply system at the NTS, due to aging and loading requirements is at too high a risk of failing to support an ongoing test program. If it became necessary to replace the system, it could not be done within the 2-3 year readiness window. Our strategy to prepare for this contingency is to obtain congressional authorization and complete final design and scoping of the project. It is the intention of Defense Programs not to proceed with physical construction of the power system upgrades

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8. Project Description, Justification and Scope (Continued)

until either the current system is no longer able to support current ongoing NTS missions or direction is given to the Department to begin preparing to resume underground nuclear testing.

The project scope described below is the maximum scope that may be required to meet the requirements of the NTS. If, and when, physical construction begins, actual scope of the project will be reviewed.

This subproject will replace one major substation, one switching center, and one switching station on the 138 kilovolt (kV) transmission system loop at the NTS. The switching center and switching station serve as termination points for the incoming power lines from outside utilities. Site improvements at each of the proposed facilities will include site and access road grading, conduit trenching, perimeter fencing, area lighting, and concrete foundations for power equipment installations.

The Frenchman Flat and Jackass Flats Substations and the Mercury Switching Center will each require a new control building. Concrete masonry units (CMUs) will be used for construction and their sizes will be 600, 800, and 800 square feet, respectfully. Each building will provide an adequate environment for electrical relays, switchgear, and telecommunications equipment. Each control building will contain a heating, ventilation, and air conditioning (HVAC) system; a fire-detection and alarm system; electrical power for interior and exit lighting; battery-powered emergency lighting; telephones; and fully insulated walls and ceilings.

The Mercury Switching Center is the termination point for the Nevada Power Company (NPC) 138kV transmission line, which provides the primary power source to the NTS. NPC metering is located at this facility. This switching center will be replaced by a new center located in close proximity, and existing incoming and outgoing 138kV transmission lines will be modified to terminate at the new center. The existing dispatch center will remain within the Mercury Switching Center; the installation of new relaying, metering, and telecommunication equipment within the control building will require that the dispatch center be expanded. The Mercury Switching Center will be constructed using a breaker and one-half configuration.

The Jackass Flats Substation is the termination point for the Valley Electric Association (VEA) 138kV line, which provides an alternate power source to the NTS. NPC metering is also located in this facility. This substation contains an autotransformer, which provides 138/69kV transformation and a 69kV buss with 69kV service to Area 25 at the NTS. The 138kV facilities will be replaced by a new switching center located next to the existing substation. The existing 69kV facilities and autotransformer will remain at the existing facility, which will be supplied by a tap from the new switching center. The existing incoming and outgoing 138kV lines will be modified to terminate the new switching station; however, the existing 69kV and 12kV facilities and lines will not be modified. The switching center will be constructed using a breaker and one-half configuration.

The Frenchman Flat Substation will be replaced with a new substation constructed near the existing facility. Existing 138kV and 34.5kV lines will be modified to terminate at a new 138kV/34.5kV transformer in the new substation. The substation will be constructed using a ring-buss configuration. The new substation, switching center, and switching station will employ rigid buss-type structures, new gas breaker technology, microprocessor relays, SCADA control of major equipment, and new fiber-optic cable for telecommunication requirements (relaying, metering, and telephone system). A fiber-optics system will replace the existing, unreliable powerline carrier communications system. This fiber-optics system will employ approximately 100 miles of fiber-optic cable wrapped around the existing overhead static wire on the NTS 138kV transmission line. All three facilities will have a grounding-grid system and a lighting-protection system. Power will be transferred to each facility upon completion of construction. All of the retired facilities will be demolished.

The 138kV transmission loop with its associated facilities is the backbone of the entire NTS power system. Reliable power for all weapons testing programs, the Yucca Mountain Project, environmental programs, and many other projects and programs conducted at the NTS are dependent upon the reliability of these facilities. Maintenance of aging and failing equipment is becoming increasingly more difficult

1. Title and Location of Project: Nuclear Weapons Stockpile Stewardship
Facilities Revitalization, Phase VI, Various Locations (Continued)

2a. Project No.: 96-D-102
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

because many replacement parts are no longer available. The Mercury Switching Center and the Jackass Flats Substation are the key substations at the NTS and connect to the outside utility companies, which provide electrical power to the site. Equipment failures in these facilities have a significant impact upon all NTS programs and the reliability of the entire power system.

Existing 138kV power facilities at the NTS are approximately 25 to 35 years old. The three substations or switching stations to be replaced in this subproject are among some of the oldest facilities at the NTS. Over the past several years increased outages due to equipment failure have demonstrated that these facilities have reached the end of their expected useful life span. Existing circuit switchers and oil-filled breakers are starting to fail and must also be replaced. The 138kV transmission line between the Frenchman Flat and Jackass Flats substations has been used as a backup line during outages or maintenance of the line between the Jackass Flats Substation and the Mercury Switching Center; however, this line is nonfunctional due to breaker failure at both ends of the line. Even if these three facilities are replaced by the year 2000, the existing equipment will be at almost 40 years old, which is well past its reliable uselife. The potential for problems will increase with each additional year of age; therefore it is imperative that modernization occur as soon as possible.

The existing communication system has also been in service long past its useful life span, is obsolete, and needs to be replaced with a system that provides adequate speed and capacity for modern relaying, SCADA, and metering facilities. The use of microprocessors in these new technologies makes them very susceptible to lighting and the system noise present on the existing phone line system. A new communications system using fiber-optics technology is the most practical solution to provide a long-term, reliable communication system for the NTS power system.

The following is a new subproject that was not included in the FY 1996 Congressional data sheet.

Subproject 04 - Roof Replacement - Protection of Real Property, LLNL, Livermore, California

TEC	Previous	FY 1996	FY 1997	FY 1998	FY 1999	Outyear	Construction Start - Completion Dates
$7,810	$0	$0	$3,000	$4,810	$0	$0	2nd Qtr. FY 1998 - 1st Qtr. FY 1999

This project is to reconstruct five of the most seriously deteriorated building roofs at LLNL. Many LLNL buildings were built in the 1960's and 1970's and their roofing systems have been in place far longer than their expected economic lives. These buildings have had many patches and repairs to solve leaks and deterioration of original roofing, now entire roof systems need to be reconstructed. The project addresses five buildings with the worst roof conditions. These buildings will require immediate attention within the next few years to maintain and protect the integrity of the facilities/and make sure that programmatic work can proceed without serious damage to the buildings and their contents. This line item is the first phase of a proposed four phase roof reconstruction effort.

For the Laboratory to perform the caliber and variety of scientific work found at LLNL, the support requirements are many. A well functioning, efficient, and modern infrastructure is crucial not only to the level of performance at the Laboratory, but also to the health and safety of all its staff and equipment inside the structure.

The roofs of over 100 buildings at LLNL have exceeded their life expectancy of 20 years. Many of these have deteriorated to a point where they require frequent repairs, and leaks jeopardize experiments, experimental data and equipment. The five roofs identified for inclusion in this project's scope of work have severe problems, including membrane failure and possible structural damage. The roofs for Buildings 131, 151, 253, 331 and 511 will be reconstructed. The need to replace the roofs is important to stop any serious damage to the main structure where the cost would be greater and programs would have to leave the building while work progressed. These five buildings identified are needed for weapons core competency.

8. Project Description, Justification and Scope (Continued)

In general, the deterioration of these roofing systems is such that repairs will neither stop the leakage nor be cost effective. Therefore, replacement of the roofing systems is the only viable solution.

9. Detail of Cost Estimate

This cost estimate is based upon completed individual conceptual design reports. Rates used for escalation were taken from applicable DOE Departmental Price Change Indices, applied to the mid-point of the construction schedule.

	Item Cost	Total Cost
a. Design and Management Costs		$10,498
1. Engineering, design and inspection at approximately 15.1 percent of construction	$ 7,152	
2. Construction management costs at approximately 2.5 percent of construction.	1,185	
3. Project management at 4.6 percent of construction costs	2,161	
b. Land and land rights		0
c. Construction costs		47,197
1. Improvements to land	0	
2. Buildings	11,856	
3. Other structures	2,330	
4. Utilities	4,541	
5. Special facilities	28,050	
6. Activation	140	
7. Security	280	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		440
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		58,135
i. Contingency at approximately 19.8 percent of above costs		11,524
j. Total line item cost (Section 11.a.1.(a))		$69,659
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$69,659

The estimates by location are as follows:

Sandia National Laboratories	$ 0
Lawrence Livermore National Laboratory, California	7,810
Los Alamos National Laboratory, New Mexico	33,700
Nevada Test Site, Nevada	28,149
Total	$ 69,659

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1. Title and Location of Project: Nuclear Weapons Stockpile Stewardship Facilities Revitalization, Phase VI, Various Locations (Continued)

2a. Project No.: 96-D-102
2b. Construction Funded

10. Method of Performance

Design and procurement of the conventional facilities will be performed under negotiated architect-engineer contracts. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1997	FY 1998	FY 1999	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 2,200	$ 13,100	$ 20,570	$ 13,940	$ 19,849	$ 69,659
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 2,200	$ 13,100	$ 20,570	$ 13,940	$ 19,849	$ 69,659
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	865	0	0	0	0	865
(c) Decontamination & Decommissioning (D&D)	10	0	0	0	0	10
(d) NEPA documentation costs	84	0	0	0	0	84
(e) Other project related costs	100	0	0	30	0	130
(f) Total other project costs	$ 1,059	$ 0	$ 0	$ 30	$ 0	$ 1,089
(g) Total project costs	$ 3,259	$ 13,100	$ 20,570	$ 13,970	$ 19,849	$ 70,748
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 3,259	$ 13,100	$ 20,570	$ 13,970	$ 19,849	$ 70,748

b. Related annual costs (estimated life of project--30 years)	
1. Facility operating costs	$ 20
2. Facility maintenance and repair costs	58
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 78

1. Title and Location of Project: Nuclear Weapons Stockpile Stewardship Facilities Revitalization, Phase VI, Various Locations (Continued)	2a. Project No.: 96-D-102 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- None.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- None.
      (b) Conceptual design -- $865.
      (c) Decontamination and Decommissioning -- $10.
      (d) NEPA documentation -- $84.
      (e) Other project related funding -- NEPA documentation.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project: Atlas Los Alamos National Laboratory, Los Alamos, New Mexico	2a. Project No. 96-D-103 2b. Construction Funded

SIGNIFICANT CHANGES

- Total project cost (TPC) was increased by $58,000 to allow for necessary research and development for the project.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project: Atlas
Los Alamos National Laboratory, Los Alamos, New Mexico

2a. Project No. 96-D-103
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 15 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $ 43,300
Total Project Cost (TPC) -- $ 48,442

4a. Date Physical Construction Starts: 2nd Qtr. FY 1997

4b. Date Construction Ends: 3rd Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $ 43,300
TPC -- $ 48,500

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1996	$ 8,400	$ 0	$ 8,400	$ 8,300
1997	15,100	0	15,100	15,100
1998	13,400	0	13,400	13,500
1999	6,400	0	6,400	6,400

8. Project Description, Justification and Scope

Above ground experiments (AGEX) that address secondary weapons physics require an energy-rich, high energy density environment. To simultaneously achieve the full spectrum of conditions present in a nuclear weapon, an underground test is required. In above-ground experiments in the laboratory, one can examine individual aspects of secondary weapons physics using three classes of facility: pulsed power for high energy; high energy lasers for high power; and ultra high-intensity lasers for extreme energy-density conditions. No single technology can access the full range of conditions to meet the needs of the weapons program for above-ground experiments.

This project provides enhanced Los Alamos National Laboratory (LANL) pulsed power experimental capability (technical stewardship of capability in era of test restraints) to support AGEX for stockpile stewardship. This project includes the design, procurement, assembly, and installation of the Atlas 20-25 Megampere, 36 Megajoule capacitor bank with associated controls and power supplies in Buildings 124, 125 and 294 at LANL Technical Area (TA) 35. The project will utilize the existing 1,430 MVA generator located in building 301 at LANL.

The scope of work includes:

- Design, procurement, assembly, and installation of the Atlas 20-25 Megampere, 36 Megajoule capacitor bank with associated controls and power supplies in Buildings 124, 125 and 294 at TA-35.

1. Title and Location of Project: Atlas Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 96-D-103 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

- Modification of approximately 6,700 square feet of Building 124 at TA-35 to support Special Facilities (SFE) installation and completion of operational upgrades to the facility.
- Utilization of existing 1,430 MVA generator in Building 301 at TA-35 for electrical power.
- Installation of a power storage equipment area of 2,600 square feet in Building 294 and upgrades to the control room are of 1,600 square feet in Building 125 at TA-35; also provides power distribution and diagnostic cabling to experiment in Building 124.
- Completion of site work and utilities to support the use of up to 3 Government-Furnished diagnostic trailers and installation of new dielectric oil storage tank adjacent to Building 124 at TA-35.

This project will support a weapons experimental program that is an alternative to the underground nuclear testing program. These experiments are an essential part of any nuclear weapons program. Because of the extreme conditions achieved in a thermonuclear explosive, no single technology can hope to simulate all weapons physics. One must make increasing sacrifices in experimental volume and duration to reach conditions nearer to those found in nuclear explosives. Existing facilities are unable to reach the required conditions. A cost/benefit analysis was performed to identify the breakpoints in technology required to provide credible above-ground simulation capabilities at minimum cost.

The use of the existing Los Alamos Antares facility with internal modifications of power, HVAC, and partition systems will permit a cost-effective, conveniently located facility to be added to the existing inventory of experimental facilities supporting AGEX II. The chosen site will permit sharing the existing 1,430 MVA generator in Building 301 at LANL.

A summary of key justification items for ATLAS follows:

- ATLAS addresses an essential capability requirement for DOE's stockpile stewardship.
- Without underground testing, AGEX are the best means available to exercise and validate design judgement.
- The United States entered the extended test moratorium in July 1993. AGEX must help mitigate the technical risks and the loss of stockpile-related judgement associated with a no-test environment by exercising weapons skills.

The FY 1997 funds will be used to complete the detailed design, initiate long-lead procurements, and begin building modifications.

1. Title and Location of Project: ATLAS
Los Alamos National Laboratory, Los Alamos, New Mexico

2a. Project No. 96-D-103
2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 8,723
(1) Facility engineering design and inspection at approximately 35 percent of construction costs	$ 683	
(2) SFE Engineering Design and Inspection at approximately 22 percent of SFE costs (Item E)	5,303	
(3) Project and construction management at 10 percent of construction costs (Item C & E)	2,737	
b. Land and land rights		0
c. Construction costs		1,957
1. Improvements to land	1,818	
2. Buildings modifications	25	
3. Other structures	114	
4. Utilities	0	
5. Special facilities	0	
d. Standard equipment		0
e. Special facilities equipment (SFE)		24,135
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		146
h. Subtotal (a through g)		$ 34,961
i. Contingencies at approximately 24 percent of above costs		8,339
j. Total line item cost (Section 11.a.1.(a))		$ 43,300
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 43,300

10. Method of Performance

Design and Inspection shall be performed under a negotiated architect or engineering contract. Construction and construction procurement shall be accomplished by fixed price contracts awarded on the basis of competitive bidding. Procurement of Government Furnished Equipment will be performed by LANL and will be accomplished by competitive fixed price or CPFF contracts. SFE will be installed by LANL and the site services contractor.

1. Title and Location of Project: ATLAS
Los Alamos National Laboratory, Los Alamos, New Mexico

2a. Project No. 96-D-103
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1996	FY 1997	FY 1998	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line Item (Section 9.j.)	$ 0	$ 8,300	$ 15,100	$ 13,500	$ 6,400	$ 43,300
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 0	$ 8,300	$ 15,100	$ 13,500	$ 6,400	$ 43,300
2. Other project costs						
(a) R&D necessary to complete project	$ 3,089	$ 339	$ 0	$ 0	$ 0	$ 3,428
(b) Conceptual design costs	577	0	0	0	0	577
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	4	0	0	0	0	4
(e) Safety documentation	0	0	0	0	0	0
(f) Acceptance and turnover	75	0	0	0	0	75
(g) Other project related costs	0	66	464	293	293	1,116
(h) Total other project costs	$ 3,745	$ 405	$ 464	$ 293	$ 293	$ 5,200
(i) Total project costs	$ 3,745	$ 8,705	$ 15,564	$ 13,793	$ 6,693	$ 48,500
(j) LESS: Non-Federal contribution	0	0	0	0	0	0
(k) Net Federal total project cost (TPC)	$ 3,745	$ 8,705	$ 15,564	$ 13,793	$ 6,693	$ 48,500

b. Related annual costs (estimated life of project--40 years)	
1. Facility operating costs	$ 2,500
2. Facility maintenance and repair costs	1,000
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	137
7. Other costs	0
Total related annual costs	$ 3,637

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1. Title and Location of Project: ATLAS
Los Alamos National Laboratory, Los Alamos, New Mexico

2a. Project No. 96-D-103
2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- As described.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- Prototype development.
      (b) Conceptual design -- Includes F&OR's, CDR, CPDS and Value Engineering
      (c) Decontamination and Decommissioning (D&D) -- None.
      (d) NEPA documentation -- Includes effort required to obtain NEPA Categorical Exclusion
      (e) Other project related funding -- Includes PHA, ORE, ORR and Startup activities

b. Related annual costs
   Includes Atlas staffing, maintenance, general repairs and utility costs.

1.	Title and Location of Project: Processing and Environmental Technology Laboratory (PETL), Sandia National Laboratories (SNL), Albuquerque, New Mexico	2a. Project No. 96-D-104 2b. Construction Funded

SIGNIFICANT CHANGES

- A slight increase in TPC, from $48,600,000 to $49,000,000, reflects experience obtained from a similar project nearing completion at SNLA.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project: Processing and Environmental Technology Laboratory, Sandia National Laboratories, Albuquerque, New Mexico

2a. Project No. 96-D-104
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 17 months

5. Previous Cost Estimate: None
Total Estimated Cost (TEC) -- $45,900
Total Project Cost (TPC) -- $48,600

4a. Date Physical Construction Starts: 1st Qtr. FY 1997

4b. Date Construction Ends: 1st Qtr. FY 2001

6. Current Cost Estimate:
TEC -- $ 45,900
TPC -- $ 49,000

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1996	$ 1,800	$ 0	$ 1,800	$ 1,740
1997	14,100	0	14,100	5,720
1998	19,100	0	19,100	16,160
1999	8,600	0	8,600	13,380
2000	2,300	0	2,300	8,400
2001	0	0	0	500

8. Project Description, Justification and Scope

A slight increase in TPC, from $48,600,000 to $49,000,000, reflects experience obtained from a similar project nearing completion at SNLA.

The Processing and Environmental Technology Laboratory (PETL) is a new laboratory/office facility to be located on a presently vacant site. The proposed building is a three-story building with a full basement. Each floor is approximately 41,000 square feet, yielding a building of approximately 165,700 gross square feet. An exterior waste holding and neutralization area (approximately 1,730, gross square feet) and a chemical storage area (approximately 1,780 gross square feet) are also included. The Office/Laboratory consists of two primary functional areas, laboratory and office space. The offices are located at the eastern end of the facility, and the laboratory service areas and loading docks are located at the west end. The building is designed to meet the latest ES&H requirements for facilities of this type. Vibration isolation, pedestrian circulation, emergency egress, separation between laboratory and technician work stations, and separate laboratory service corridors which serve as secondary emergency exits are all design responses to identified user requirements. The building will have a modular design to facilitate varying the size of laboratory and office spaces in minimum time and at low costs, as user requirements change. The building is oriented on an east-west axis to achieve maximum opportunity for solar gain along the south elevations.

Utility chases will extend from the basement to the roof deck and will have walls of painted gypsum board over metal studs with a 2-hour fire rating. Generally, interior walls are gypsum board over metal studs. Elevator shafts will be of 8 inch concrete masonry construction. Fire-rated partitions around laboratory areas are of fully grouted 8 inch concrete masonry, continuous to the underside of the floor surface to

1. Title and Location of Project: Processing and Environmental Technology Laboratory, Sandia National Laboratories, Albuquerque, New Mexico (Continued)	2a. Project No. 96-D-104 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

achieve a 4-hour rating. Floors will be hardened exposed concrete in the basement, utility chases, stairwells, and undeveloped office/lab areas. The structural system will consist of a cast-in-place reinforced concrete frame supporting a cast-in-place reinforced waffle slab system at the elevated floors and precast concrete double tee units at the roof. The exterior wall system consists of cast-in-place walls, columns and spandrel beams with standard gray precast concrete window units set in place between the spandrel beams and columns. Air intake/supply shafts are enclosed with the precast concrete flat panels.

The heating, ventilating, and air conditioning systems include a double duct, variable air volume (VAV), perimeter heating/cooling system, and a core or interior single duct VAV system. Heating will be provided by piped hot water generated at a heat pump chiller. The chiller will provide cold water for building cooling and test equipment. Interior plumbing systems will include sanitary waste, domestic hot and cold water, compressed air, natural gas, and chilled water supply and return. Exhaust will be provided by utility fans located at the roof level, connected to exhaust duct risers in chases. Site utilities include a primary electric feeder, signal duct, steam and condensate lines, water, natural gas, and sanitary sewer. Area improvements will include security fencing, storm drains inlets, and service and driveway areas. Landscaping, including trees, shrubs, irrigation system and gravel, will be provided consistent with existing landscape practices. The building will be designed to conserve energy.

The PETL is an important element that will enable SNL to continue to provide exceptional research and development capability in support of the Department of Energy (DOE).

A publicly-stated objective of the DOE is to use an aggressive R&D program to develop production processes which will offer significant cost reductions and minimize the use of toxic materials. The synergism represented by PETL meets the DOE's objective in that it collocates individuals responsible for identifying and developing new materials and processes, and translating them to application.

The focus of PETL is the development, characterization, and application of modern processing to ensure the safety of the environment and personnel, as well as to produce products required for nuclear weapons applications. PETL allows the integration of real-time, on-line diagnostics, test structures in processing lines for "self-identification" of processing problems. The substitution of environmentally safer processing chemicals will be analyzed to minimize design impact and to assess the affect on long-term compatibility. Analytical support for production of non-nuclear components will replace services provided by integrated complex plants, as the manufacturing complex is reduced in size and Manufacturing Development Engineering (MDE) increases.

The primary mission of Sandia National Laboratory is the weaponization of nuclear explosives, i.e., the design of the non-nuclear components in nuclear weapons. The goal of the PETL is to maintain and to enhance SNL's capability to provide high-quality engineering research and development (R&D) to support the DOE weapons program to meet new environmental, safety, and health (ES&H) requirements and reconfiguration of the Nuclear Weapons Complex (NWC). PETL will provide R&D facilities for personnel responsible for developing materials and processes associated with weapon production. The materials and processes R&D has a strong waste minimization content and also meets performance, reliability, and cost requirements.

PETL occupants will include the following centers of excellence: the Materials and Process Sciences Center, the Engineered Materials and Processes Center, and parts of the Environment Center and the Microelectronics Center.

SNL is committed to supporting programmatic needs for materials, to resolving environmental problems associated with weapon production, and to conforming with environmental and safety regulations. This commitment is reflected in SNL's efforts to combine the above-mentioned centers of excellence, which are currently dispersed throughout the SNL site.

1. Title and Location of Project: Processing and Environmental Technology Laboratory, Sandia National Laboratories, Albuquerque, New Mexico	2a. Project No. 96-D-104 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

DOE is faced with developing a more efficient complex to produce and to dismantle weapons, as well as to address ES&H issues affecting SNL operations and nuclear weapon production. Without additional space, efforts involving materials compatibility, aging, and reliability will be severely limited. These efforts are essential in certifying the reliability of the nuclear weapons stockpile. Without new space, SNL would continue to occupy temporary buildings and substandard and leased space. Modifications of current laboratories are not feasible, because they would require complete replacement of basic services, such as heating, ventilating and cooling. For example, the main existing materials research laboratory has a ventilation system that spreads any gas or vapors throughout the building if a release occurs inside a fume hood.

PETL will provide facilities for staff seeking timely solutions to the following critical problems:

- Assuring safety and reliability of a smaller stockpile incorporating new materials and processes for production.
- Elimination of some materials from nuclear weapons because of production/usage restrictions, or total bans and increased requirements to minimize occupational exposure, with minimum effect on the reliability of nuclear weapons.
- Substitution of environmentally safer materials and processes during nuclear weapon production, with minimum effect on the reliability of nuclear weapons.
- Elimination/reduction of hazardous waste (radioactive, mixed, or chemically hazardous) during nuclear weapon production and better treatment (including detoxification or stabilization) of newly generated hazardous wastes.
- Dismantling nuclear weapons in an environmentally acceptable and safe manner.
- Compliance by SNL and the Nuclear Weapons Complex with ES&H laws, regulations, DOE orders, and industry standards.

Currently, materials activities are divided among nine different buildings. PETL will allow these activities to be centralized into one facility. Because most of the current laboratories are located in old facilities, the move to PETL will assist in conforming to current and expected regulations, DOE orders, and best industry ES&H practices.

PETL will enable the materials organizations to conform with best industry ES&H practices. The new building will be designed to conduct environmentally and occupationally safe R&D involving hazardous materials used in weapon production.

The planned use of the requested FY 1997 funding is for the continuation of Title I and II design and initiation of construction.

8. Project Description, Justification and Scope (Continued)

Removal Plan

The following buildings will be vacated by organizations proposing to move to the PETL:

Building	Year Acquired	Building Size (Net Square Feet)	Space Vacated (Net Square Feet)	Organization(s)
805	1959	48,471	23,748	1700/1800
806	1961	39,640	7,424	1700/1800
807	1966	52,845	2,317	1700/1800
823	1982	79,667	1,795	6600
828	1946	11,475	2,600	1800
894	1950	75,514	3,213	1800
T-47-49	1979	3,273	1,230	1800
			42,327	

Building 828 is considered substandard and included in the SNL substandard and temporary abandoned building decontamination and disposal program under a separate, future expense-funded project. It is expected the other space vacated by future PETL occupants will be backfilled by technical and administrative organizations as part of the Lab-wide space planning strategy.

1. Title and Location of Project: Processing and Environmental Technology Laboratory, Sandia National Laboratories, Albuquerque, New Mexico	2a. Project No. 96-D-104 2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 6,031
(1) Engineering design and inspection at approximately 12.0 percent of construction costs, (Item C) (Design, Drawings, and Specifications $1,500)	$ 3,231	
(2) Construction Management (Item C)	862	
(3) Project Management at 7.2 percent of Construction Costs	1,938	
b. Land and land rights	0	
c. Construction costs		26,925
1. Improvements to land	323	
2. Buildings	24,771	
3. Other structures	0	
4. Utilities	1,831	
5. Special facilities	0	
d. Standard equipment		7,216
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		40,172
i. Contingencies at approximately 14.2 percent of above costs		5,728
j. Total line item cost (Section 11.a.1.(a))		$ 45,900
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 45,900

Note: This February 1994 estimate was prepared by Sandia National Laboratories on the basis of a revised conceptual design report dated November 1992. The conceptual design estimate has been escalated by a cumulated total of 1.122 to the anticipated midpoint of construction and at a rate of 1.180 to the anticipated midpoint of Interior and Move-in (occupancy) construction. Escalation was based on DOE departmental price change index for construction projects within defense programs and general construction guidance dated August 1993.

10. Method of Performance

Design and inspection shall be performed under a negotiated architect-engineering contract. Construction and procurement shall be accomplished by fixed-price contracts awarded on the basis of competitive bidding.

1. Title and Location of Project: Processing and Environmental Technology Laboratory, Sandia National Laboratories, Albuquerque, New Mexico	2a. Project No. 96-D-104 2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
a. Total project costs								
1. Total Facility Costs								
(a) Line Item (Section 9.j.)	$ 0	$ 1,740	$ 5,720	$ 16,160	$ 13,380	$ 8,400	$ 500	$ 45,900
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0	0	0
(e) Total facility costs (Federal and non-Federal)	$ 0	$ 1,740	$ 5,720	$ 16,160	$ 13,380	$ 8,400	$ 500	$ 45,900
2. Other project costs								
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	220	0	0	0	0	0	0	220
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0	0	0
(d) NEPA documentation costs	90	0	0	0	0	0	0	90
(e) Other project related costs	313	450	450	450	450	450	227	2,790
(f) Total other project costs	$ 623	$ 450	$ 450	$ 450	$ 450	$ 450	$ 227	$ 3,100
(g) Total project costs	$ 623	$ 2,190	$ 6,170	$ 16,610	$ 13,830	$ 8,850	$ 727	$ 49,000
(h) LESS: Non-Federal contribution	0	0	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 623	$ 2,190	$ 6,170	$ 16,610	$ 13,830	$ 8,850	$ 727	$ 49,000

b. Related annual costs (estimated life of project--50 years)	
1. Facility operating costs	$ 661
2. Facility maintenance and repair costs	312
3. Programmatic operating expenses directly related to the facility	55,084
4. Capital equipment not related to construction but related to the programmatic effort in the facility	1,800
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility Costs	1,083
7. Other costs	0
Total related annual costs	$ 58,940

1. Title and Location of Project: Processing and Environmental Technology Laboratory, Sandia National Laboratories, Albuquerque, New Mexico	2a. Project No. 96-D-104 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line Item -- Narrative not required.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete project -- None.
      (b) Conceptual design costs -- Prepared by Dekker and Associates, Architects, Albuquerque, New Mexico, in January 1990, and then revised in November 1992.
      (c) Decontamination and Decommissioning -- None.
      (d) NEPA documentation costs -- An Environmental Assessment is currently being prepared.
      (e) Other project related costs -- Include in-house engineering support, project development and project management costs prior to authorization, a Safety Assessment, and non-dedicated support activities throughout this project life.

b. Related annual costs (estimated life of project--50 years)
   Annual operating cost will be reduced as a result of improved system reliability, modern equipment and systems, and higher efficiencies. This project relocated existing activities to a new facility under revitalization. The estimated useful life of this new facility is estimated at 50 years. Operating costs, maintenance and repair costs and utility costs are estimated for typical office/laboratory facilities at SNL/NM. Capital Equipment figures are not related to construction, but estimated to maintain annual programmatic effort. Programmatic operating expenses include salaries and supplies for approximately 240 people estimated at $229,518 per person per year.

1.	Title and Location of Project: Contained Firing Facility Addition Lawrence Livermore National Laboratory, Livermore, California	2a. Project No. 96-D-105 2b. Construction Funded

SIGNIFICANT CHANGES

- The TEC has increased from $47,900,000 to $49,700,000 and the TPC from $50,635,000 to $52,765,000 because of a change in allocation of overhead and indirect costs, based on DOE Budget Call Instructions, plus a hardening of change room/shower facility to protect against an accidental detonation, addition of a fast-acting personnel door in the blast chamber, addition of a new communications cable, and an increase in parking spaces and provisions for truck access.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project: Contained Firing Facility Addition
Lawrence Livermore National Laboratory, Livermore, California

2a. Project No. 96-D-105
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 14 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $ 47,900
Total Project Cost (TPC) -- $ 50,635

4a. Date Physical Construction Starts: 4th Qtr. FY 1997

4b. Date Construction Ends: 3rd Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $ 49,700
TPC -- $ 52,765

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1996	$ 6,600	$ 0	$ 6,600	$ 4,900
1997	17,100	0	17,100	10,400
1998	19,300	0	19,300	23,400
1999	6,700	0	6,700	11,000

8. Project Description, Justification and Scope

The TEC has increased from $47,900,000 to $49,700,000 and the TPC from $50,635,000 to $52,765,000 because of a change in allocation of overhead and indirect costs, plus a hardening of change room/shower facility to protect against an accidental detonation, addition of a fast-acting personnel door in the blast chamber, addition of a new communications cable, and an increase in parking spaces and provisions for truck access.

The Contained Firing Facility Addition is a capability addition to the Flash X-Ray Facility at Lawrence Livermore's Site 300.

This project is a facility of approximately 28,900 SF, consisting of four related structures, for increasingly safe and environmentally compliant firing of explosive charges up to a 60 kg limit of energetic high explosives. This project builds on to the existing 8801 firing bunker at the existing firing table site adjacent to 8801.

The four structures are a structurally reinforced Firing Chamber, a Support Facility, a Diagnostic Equipment Facility and an Office Module.

The Firing Chamber is designed to contain the effects of cased high explosive materials used in various laboratory experiments. The explosive quantities vary in operational weight up to approximately 60 kg, or an equivalent TNT design weight of approximately 206.3 pounds. The chamber must be protected from shrapnel from explosive casings. All major structural elements are to remain elastic to permit repetitive chamber usage with no structural damage.

1. Title and Location of Project: Contained Firing Facility Addition Lawrence Livermore National Laboratory, Livermore, California (Continued)	2a. Project No. 96-D-105 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The restraints imposed by the number and pattern of the existing camera ports, whose inclusion within the chamber is required, led to the selection of a chamber, of approximately 3,700 SF. In this configuration loads are resisted by structural elements acting primarily in tension-flexure combination. The interior surfaces of the chamber will have a steel liner on the walls and ceiling and the floor. In addition, the walls and ceiling will have layers of removable mild steel plate for shrapnel protection, and the floor will be covered by a steel plate anvil directly under the firing area. The Firing Chamber includes a blast effects door to permit vehicle entry, blast effects doors for personnel entry, and numerous smaller openings for air ducts, diagnostic ports, cable penetrations and TV camera, all protected against shrapnel and pressure damage.

At B801 the existing bullnose will be cut away and be rebuilt as part of the new Firing Chamber. The existing Camera Room at this location will be retained, the chamber floor will be configured in order to accommodate the present camera room roof.

The Support Facility of approximately 16,600 SF provides a staging area for experiment preparation, storage of equipment and materials used, and personnel areas for lockers, toilets and decontamination showers. A mezzanine above the personnel area is used for mechanical equipment with an additional mechanical equipment area adjacent to the staging are. The Support Facility is comprised of non-bearing tilt-up reinforced concrete panel walls supported structurally by a rigid steel frame system. The roof is metal deck and concrete with insulation and a single ply roofing system.

The Diagnostic Equipment Facility of approximately 6,200 SF is similar to the Support Facility and has non-bearing, tilt-up reinforced concrete panel walls supported structurally by a rigid steel frame system. The roof is a metal deck with concrete, insulation, and a single ply roofing system. The interior space will be open to accommodate a variety of diagnostic equipment. Adjacent to the perimeter wall will be a new stair going down to an extended corridor which will lead into the existing facility for complete interior access to all areas. The wall will have penetrations for a variety of diagnostics. Access to the Support Facility will be from the diagnostic area through the locker, shower, toilet complex. The diagnostic area will have both fluorescent and dimmable incandescent light fixtures, a wet pipe sprinkler system, and an HVAC system with 95% efficient final filters. The space will also have floor drains and low conductivity water piping. These facilities will require extensive earthwork.

The Office Module of approximately 2,400 square feet will consist of 7 offices for permanent staff and visiting experimenters, a conference room and open areas for file cabinets and partitioned desk space.

Access at B801 will be by means of new and existing roads. Drive areas around the Support Facility will be paved. A paved parking lot will be provided to replace parking stalls displaced by new facilities as well as accommodate the increase in visitors and facility users. A net total of 21 parking spaces will be added. Non-hazardous sewage disposal for the proposed facilities will be by means of a new septic tank and leach field system at B801.

The Firing Chamber and Support Facility areas will have an air conditioning system consisting of air handling units with prefilters, final filters, energy recovery coil, direct expansion coil, electric resistance heaters, and a supply fan. The Firing Chamber purge system will consist of a supply fan and a pollution control system with cartridge dust collectors, prefilters, High Efficiency Particulate Air (HEPA) filters, wet scrubbers, and an exhaust fan.

Tasks associated with all buildings include the material handling system, instrumentation and control system, washwater control system, waste water filtration system, process utilities, and environmental compliance for airborne and waste water discharge from the facility. Material handling will be accomplished by providing a specially designed mobile crane with a capacity of 40 tons. Washwater control includes automatic and manual washdown for the Firing Chamber itself; while the other areas require only a manual washdown system. Process gases to be supplied to the facility include argon, methane, compressed air, vacuum, helium and nitrogen. Environmental control requires the monitoring of combustion gases and waste water. To obtain a complete material balance, a number of unique measuring devices will be provided.

1. Title and Location of Project: Contained Firing Facility Addition Lawrence Livermore National Laboratory, Livermore, California (Continued)	2a. Project No. 96-D-105 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The purpose of this project is to minimize hazardous emissions to the environment, reduce quantities of hazardous waste, and to provide a continuing capability to test the high explosive component of a nuclear weapon. These goals will be achieved through the design and use of a contained firing chamber and support structures at LLNL's existing firing site Bunker 801 at Site 300.

Lawrence Livermore National Laboratory maintains and operates open-air high explosive test facilities at Site 300 as part of their Stockpile Stewardship Program. Many of the devices involved in these tests contain toxic and/or low level radioactive materials (depleted uranium). At present, the firing operations at these facilities are in compliance with all applicable environmental laws. However environmental standards are evolving at a rapid pace and it is expected that our open-air explosive testing will come under increased scrutiny as these regulations become more stringent.

This project will be the pacesetter in the area of explosive testing technology. The project will provide the capability to reduce to negligible levels the emissions of hazardous materials into the environment during and after explosive testing and will reduce the total amount of hazardous wastes generated. In addition it will provide a safer work environment, fully compatible with evolving plans for nearby commercial/residential development.

The testing areas at Site 300 offer combined diagnostic capabilities that exist nowhere else. Most test shots are one-of-a-kind, each being assembled under the day to day scrutiny of the weapons designer. Since most shots are of a development nature, it is important that they be transported a minimum distance from their assembly point to the test facility. Finally, because the intense level of interaction between the weapon designer, the shot diagnosticians and firing facility operators, these testing facilities must be located close to the design laboratory.

An essential ingredient of all nuclear weapons is the chemical high explosive component which provides the energy necessary to drive the fissile material to criticality, producing the initial fission yield. The shaping and timing of the detonation wave in the high explosive component is crucial to weapon performance. The sensitivity of the high explosive component to abnormal environments determines weapon safety. The testing facilities at Site 300 are dedicated to these necessary studies of weapon performance and safety.

The Site 300 Contained Firing Facilities Addition requested herein are required for three reasons:

1. Environmental consideration
2. Operational and cost saving advantages
3. Flexibility in application of diagnostic technology

Environmental Requirements

Environmental regulations require that hazardous materials be accounted for and tracked from their point of generation to their disposal. This regulation may soon be applied to LLNL site 300 high explosives testing operations. A contained Firing Chamber provides an intrinsic solution to the issue of accountability since no uncontrolled transfer of these materials from the firing chamber to the environment will occur. This will be true for shrapnel and particulates resulting from the shot as well as the detonation gases themselves. This concept will also apply to water used to clean the inside of the chamber.

1. Title and Location of Project:	Contained Firing Facility Addition Lawrence Livermore National Laboratory, Livermore, California (Continued)	2a. Project No. 96-D-105 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Site 300 has had no close-in residential neighbors since its creation in the early 1950's. However, it is now faced with encroachment of a major residential development along its north and northeast boundaries. Nearby residents may be impacted by blast noise. They may also perceive health risks from low level toxic/radioactive emissions. Controlling the release of blast pressure and potentially hazardous emissions will reduce the public's perception of risk as well as the potential for environment impact.

The quantities of hazardous waste produced from weapons shots will be minimized. Since gravel will not be necessary in the chamber, no contaminated firing table gravel will be produced. Tents and other coverings for experiments used in open air firing, resulting in additional wastes will also be no longer necessary.

Operational Advantages

The time and cost of periodic firing table gravel changeout will be eliminated. Cleanup of shots will be more efficient, producing substantially less total hazardous wastes. Some muster zones and areas of safety control will no longer be necessary with contained firing. The actual firing time of any experiment now depends on weather conditions. When atmospheric inversions exist, blast effects can be focused on surrounding communities (Tracy, Livermore). A contained firing chamber will eliminate this dependency and allow firing at any time, under any weather conditions. The cost of maintaining fire trails and performing extensive burnoff of surrounding hillsides to minimize fire hazards will be reduced. The vault-like nature of the structure will minimize the need for security protection or concerns should an unauthorized individual approach a firing area during a shot. This is a concern that will increase with encroaching residential development.

Flexibility in Diagnostic Technology

The contained firing chamber concept is consistent with the development and application of advanced diagnostic techniques. Such new diagnostics are required in order that reliable new weapons may continue to be put into the arsenal, especially considering the current moratorium on nuclear testing and the pending Comprehensive Test Ban Treaty. Weapons safety testing is another area of increasing importance that will be supported by this facility. Advanced diagnostics include such items as time sequenced x-ray imaging of the detonation, and multiple beam laser velocimetry. Careful design of the enclosed Firing Chamber will further enhance the potential for improved diagnostic by providing an environmentally conditioned space for the test assembly with close-in diagnostic access.

The FY 1997 funds will be used to initiate long-lead procurements and to initiate construction.

1. Title and Location of Project: Contained Firing Facility Addition Lawrence Livermore National Laboratory, Livermore, California (Continued)	2a. Project No. 96-D-105 2b. Construction Funded

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management Costs		$ 13,360
(1) Engineering design and inspection at approximately 32.2 percent of construction costs (Item c)	$ 8,210	
(2) Construction management at 7.8 percent of construction costs (Item C)	1,980	
(3) Project management at 12.4 percent of construction costs (Item C)	3,170	
b. Land and land rights		0
c. Construction costs		25,480
1. Improvements to land	760	
2. Buildings	21,050	
3. Other structures	0	
4. Utilities	780	
5. Special facilities	0	
6. Activation	2,800	
7. Security	90	
d. Standard equipment		3,090
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		41,930
i. Contingencies at approximately 18.5% of above costs		7,770
j. Total line item cost (Section 11.a.1.(a))		$ 49,700
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 49,700

10. Method of Performance

Contracting arrangements are as follows:

Design will be on the basis of a negotiated architect-engineer contract. Major equipment requiring long lead time will be purchased by LLNL early in the project on the basis of competitive bidding. To the extent feasible, construction will be accomplished by a fixed-price contract awarded on the basis of competitive bidding. Minor architect-engineering work and activation will be performed by LLNL forces.

a/ Current estimate based on conceptual design revision of January 1995. Escalation is applied according to LLNL Cost Estimating Procedures and LLNL approved escalation rates. This project has been estimated with full overhead. Lawrence Livermore National Laboratory and the department of Energy Oakland Operations Office are in the process of reviewing the possibility of an incremental overhead rate for construction projects. Based on the approval of an incremental overhead rate, the actual rate applied may be less than the project was originally estimated.

1. Title and Location of Project: Contained Firing Facility Addition
Lawrence Livermore National Laboratory, Livermore, California (Continued)

2a. Project No. 96-D-105
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1996	FY 1997	FY 1998	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 4,900	$ 10,400	$ 23,400	$ 11,000	$ 49,700
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 4,900	$ 10,400	$ 23,400	$ 11,000	$ 49,700
2. Other project costs						
(a) R&D necessary to complete project	$ 1,305	$ 0	$ 0	$ 0	$ 0	$ 1,305
(b) Conceptual design costs	460	0	0	0	0	460
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	160	0	0	0	0	160
(e) Other project related costs	520	0	0	0	620	1,140
(f) Total other project costs	$ 2,445	$ 0	$ 0	$ 0	$ 620	$ 3,065
(g) Total project costs	$ 2,445	$ 4,900	$ 10,400	$ 23,400	$ 11,620	$ 52,765
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 2,445	$ 4,900	$ 10,400	$ 23,400	$ 11,620	$ 52,765

b. Related annual costs (estimated life of project--40 years)	
1. Facility operating costs	$ 1,027
2. Facility maintenance and repair costs (included in 1 above)	0
3. Programmatic operating expenses directly related to the facility	4,375
4. Capital equipment not related to construction but related to the programmatic effort in the facility	500
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs (included in 1 above)	0
7. Other costs	0
Total related annual costs	$ 5,902

1. Title and Location of Project: Contained Firing Facility Addition Lawrence Livermore National Laboratory, Livermore, California (Continued)	2a. Project No. 96-D-105 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- No narrative required.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- Scale model testing will be performed to provide design basis. Waste stream studies will be performed to certify non-reactivity.
      (b) Conceptual design -- Total funding in this classification represents the conceptual design cost and other studies determined to be necessary.
      (c) Decontamination and Decommissioning (D&D) -- None.
      (d) NEPA documentation -- Support cost for the EA process.
      (e) Other project funding costs -- Project support costs of ADM, PSAR/MPR, FESP, Training Start up, and other related project support costs.

b. Related annual costs

   1. Facility operating costs -- Operating costs of the facility are estimated to be $1,027,000 per year (based on: maintenance costs based on 1.9% of RPV, plus FY 1987 utility/power cost of $3.70 per sq. ft. projected to $6.50 in FY 1994).
   2. Facility maintenance and repair costs -- None.
   3. Programmatic Operating Expenses Directly Related to the Facility -- This estimate is for 25 total programmatic and support personnel at $175,000 average per person in FY 1995, who are currently connected with B801 operations.
   4. Capital equipment not related to construction but related to the programmatic effort in the facility -- This is an average annual estimate which includes both the small items needed for continuous operation of the facility and the occasional large item over $100,000 which cannot be described at this time, but can be predicted as needed to maintain technical excellence in efforts conducted int he facility.
   5. GPP or other construction related to programmatic effort in the facility -- Initially no GPP costs are anticipated but to keep abreast of technology, presently undefined alterations will likely be required in the future.
   6. Utility costs -- None.
   7. Other related costs -- No narrative required.

1. Title and Location of Project: CMR Upgrades Project Los Alamos National Laboratory, Los Alamos, New Mexico	2a. Project No.: 95-D-102 2b. Construction Funded

SIGNIFICANT CHANGES

- TEC decreased from $194,750,000 to $174,100,000 and TPC increased from $204,000,000 to $223,635,000. The construction end date changed from 4th Qtr. FY 2004 to 4th Qtr. FY 2002.

- Changes in project costs and schedules are based upon the 1995 Phase 1 and Phase 2 baseline change proposal and Key Decision 1 approval which includes:

  - Adjustment of cost, schedule, and scope baselines for Phase 1 and Phase 2.
  - Realignment of scope between Phases 2 and 3 based upon NEPA approach and establishment of cost and schedule baselines based upon the completed Conceptual Design Report (CDR).
  - The work performed in Phase 3 is dependent upon future programmatic requirements based upon the results of the Programmatic Environmental Impact Statement and Site Wide Environmental Impact Statement presently being accomplished. Therefore, detailed scope, cost, and schedule for Phase 3 are not specifically addressed at this time.
  - Additional scope for Phase 2.
  - Cancellation of the Special Nuclear Materials Laboratory (SNML) project and moves $1,000,000 of remaining funds from SNML (88-D-105) into the CMR Upgrades project.

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project: CMR Upgrades Project
Los Alamos National Laboratory, Los Alamos, New Mexico

2a. Project No.: 95-D-102 a/
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1992

3b. A-E Work (Titles I & II) Duration: 84 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $194,750
Total Project Cost (TPC) -- $204,000

4a. Date physical Construction Starts: 3rd Qtr. FY 1993

4b. Date Construction Ends: 4th Qtr. FY 2002

6. Current Cost Estimate: b/
TEC -- $174,100
TPC -- $223,635

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1992	$ 12,000	$ 6,250 c/	$ 18,250	$ 2,757
1993	10,000	0	10,000	5,061
1994	10,250	0	10,250	10,504
1995	3,300	0	3,300	13,363
1996	9,940	1,000 d/	10,940	18,000
1997	15,000	0	15,000	14,023
1998	31,000	0	31,000	31,786
1999	30,000	0	30,000	28,684
2000	25,000	0	25,000	25,287
2001	17,000	0	17,000	17,144
2002	3,360	0	3,360	7,391
2003	0	0	0	100

a/ Prior to FY 1995, CMR Upgrades Phase 1 was a subproject within Nuclear Weapons Research Development and Testing Facilities Revitalization, Phase III (90-D-102). In FY 1995, Phase 1 was segregated and the scope of Phases 2 and 3 were added to create this stand alone line item.

b/ Changes in project costs and schedules are based upon the 1995 Phase I baseline change proposal and completion of the conceptual design report for the entire Phase 2 and 3 scope. Phase 3 scope, cost, and schedule are contingent upon future programmatic requirements based upon the results of the Programmatic Environmental Impact Statement (PEIS) and Site Wide Environmental Impact Statement (SWEIS). Therefore, detailed scope, cost, and schedule for Phase 3 are not specifically addressed.

c/ $6,250,000 was reprogrammed to CMR, Phase 1 subproject of Nuclear Weapons Research, Development and Testing Facilities Revitalization, Phase III (90-D-102) from Special Nuclear Materials Laboratory Replacement Project (88-D-105). Reprogramming 91-R-14 was executed in FY 1992.

d/ $1,000,000 was reprogrammed by DOE Internal Reprogramming to the CMR Upgrades Project (95-D-102) in the 1st Qtr. FY 1996 from Special Nuclear Materials Laboratory (SNML) replacement project (88-D-105).

1. Title and Location of Project: CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No.: 95-D-102 2b. Construction Funded

8. Project Description, Justification and Scope

The Chemistry and Metallurgy Research (CMR) Building is the largest structure at the Los Alamos National Laboratory (550,000 square feet). Construction of the CMR Building was completed in 1952. Most of the major mechanical and electrical equipment has reached the end of its design life.

Since its construction 40 years ago, the CMR Building has been used for research, development, and analytical work with plutonium, uranium and their alloys, and other materials in support of weapons, nuclear materials, and other Laboratory programs. This work continues to be essential to the nation's weapons program, with the principal activities in the building being in support of the plutonium research, development, and demonstration activities conducted at the Laboratory's Plutonium Handling Facility at TA-55. The activities that are critical to these plutonium operations are:

- Essential daily analytical chemistry and metallurgical services on plutonium and other actinides.
  - Analyses of plutonium metal preparations for the Laboratory's Weapons Research, Development, and Test Programs.
  - Analyses required for development and demonstration of new and improved processing methods for scrap recovery.
  - Analyses required for accountability and verification of material received or shipped and for on-site transfers.
- The CMR Building future role is also essential for support of several major Defense Programs areas which include:
  - Enhanced Safety and Reliability of Nuclear Weapons
  - Lead Technical Laboratory for Pu and U Processing
  - Weapons Dismantlement and Component Storage

The primary purpose of this project is to upgrade facility systems and infrastructure that has been in continuous operation for 40 years and are near the end of their useful life. Such upgrading will ensure the continued safety of the public and Laboratory employees and increase the operational safety, reliability and security of essential activities. Increased safety, reliability, and security are critical to the continued operation of the Laboratory's Stockpile Stewardship Programs and other national defense programs.

The Special Nuclear Materials Laboratory (SNML) Project was authorized (88-D-105) to replace the CMR Building at Los Alamos National Laboratory. In FY 1990, the project was put on hold pending a substantive review of the project including other potential options for providing the necessary specialized Laboratory space. As the planned completion date of the SNML continued to be pushed back, it became necessary to provide interim upgrades to CMR to allow its safe and reliable use in the interim period; $6,250,000 was reprogrammed (91-R-14, executed in FY 1992) from the SNML line item to Project 90-D-102, Nuclear Weapons Research, Development and Testing Facilities Revitalization, Phase III (WRD&T Revit., 3), subproject CMR Upgrades (Phase 1). Later in FY 1991, it was decided not to proceed with the construction of SNML but provide interim upgrades, to CMR (Phase 1) and to identify further upgrades based on safety and risk assessment, for continued long-term operations. The result of these safety and risk assessments is an Interim Safety Analysis Report (ISAR). The findings of the ISAR are the basis for the scope of CMR Upgrades Phases 2 and 3, which were combined with Phase 1 to produce this stand alone line item in FY 1995.

The ISAR includes an analysis of risks associated with natural phenomena design basis accidents, current operations, and comparison to criteria (6430.1A). The ISAR was utilized as the basis to identify and prioritize upgrades that would be required to continue operations in a safe, secure, and reliable manner for at least the next 20 years.

1. Title and Location of Project: CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No.: 95-D-102 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

a. CMR Phase 1 Upgrade

TEC	Previous	FY 1995	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Date
$51,600	$38,500	$3,300	$4,800	$4,400	$600	$0	3rd Qtr. FY 1993 - 3rd Qtr. FY 1998

Phase 1 was formerly part of WRD&T Revit, 3 with a TEC of $49,500,000. Based upon the 1995 baseline change proposal and the completion of the CDR, the TEC changed to $51,600,000 and completion date changed from 3rd Qtr. FY 1996 to 3rd Qtr. FY 1998.

Phase 1 of this project consists of required and urgent capital equipment replacements and upgrades in the CMR Building. Individual tasks were initially identified by a panel commissioned by the Deputy Assistant Secretary for Military Application (DASMA) in July 1990, as the minimum essential effort required to maintain operations in the CMR Building while a Safety Analysis Report (SAR) was prepared.

The Fiscal Year 1997 funds for Phase 2 will be used to complete safe standby Electrical Upgrades Wings 2 and 4; Phase 1 Engineering; Project Management, Title III, and Management Reserve.

The equipment replacements and upgrades included:

- **Continuous Air Monitor (CAM) Installations**

  Install a new CAM system in the Wings 3, 5, 7, and 9 laboratories. Upgrades include installation of CAMs, Fixed head Air Samplers (FAS), and glovebox hand monitors as required by DOE Order 5480.11 and AR 3-7. Remote monitoring capabilities at the Health Physics office and a data logging system are also included. Existing vacuum systems in Wings 3, 5, and 7 will be utilized while the vacuum system in Wing 9 will be expanded.

- **HVAC Blowers and Motors**

  Replace existing laboratory exhaust fans in the CMR Building and provide vibration analysis for approximately twenty exhaust fans in the CMR Building. Immediate needs are to replace the 200 HP exhaust fans on the first floor of the filter towers in Wings 3, 5, and 7. Other exhaust fans may require replacement contingent on the scope of the Phase 2 Confinement Zone Separation upgrade.

- **Electrical Upgrades**

  The Distribution Analysis and Power Planning Evaluation and Reporting (DAPPER) software will be used for analysis, calculations, and record drawings for all electrical upgrades. Provisions to incorporate a future facility computer monitoring and limited control system will be provided as part of the Electrical Upgrades.

  Exterior Electrical Upgrades: Replace inadequately sized exterior sectionalizing switches, eliminate existing exterior single point failures, modify exterior underground electrical system to allow switching and maintenance functions, upgrade existing controls and correct deficiencies to the existing administration wing, and Wings 1, 3, 4, and 9 substations.

  Substations Upgrade: Replace substations in Wings 2, 5, and 7.

  Wing Electrical Upgrades: Upgrade the interior low voltage power distribution system for all wings except 2 and 4 in the CMR Building. This includes the replacement of power and lighting panel boards, laboratory power panel boards, bus ways, motor control centers, replacement of all obsolete branch and feeder wiring systems, rewiring of laboratories, and upgrading the emergency and exit lighting systems.

8. Project Description, Justification and Scope (Continued)

Electrical Upgrades to Support Safe Standby, Wings 2 and 4: Upgrade the interior low voltage power distribution system in Wings 2 and 4, which is necessary for safety systems.

Spinal Corridor Cable Tray: Provide a cable tray system in the attic spinal corridor.

Grounding and Lighting Protection: Upgrade the CMR Building grounding and lighting protection systems.

- **Stack Monitors Upgrade**

Provide a stack effluent monitoring system for the CMR Building that is in compliance with DOE and EPA requirements. Each stack will be evaluated to determine the type of monitoring required. Each stack system will be stand alone, consisting of in-line samplers, CAMS, vacuum pumps, and associated tubing, wiring, and signal processing equipment. This upgrade also includes a data collection system from all of the stack CAM's to the CMR operations room and the ES&H operations room. The stack effluent monitoring will be in compliance with 40 CFR 61 and DOE Order 6430.1A.

- **Uninterruptable Power Supply (UPS) Installation**

This Upgrade is in support of the Stack Monitors Upgrade. UPSs will be located in each wing to provide an uninterruptable power source to each of the stack effluent monitoring systems. In addition, there will be one UPS supporting each of the stack monitoring data collection computer systems. Each UPS will be capable of providing backup power to the stack effluent monitoring systems for a 4 hour period.

- **Duct Modification**

Backdraft Dampers: Provide positive shutoff intake backdraft dampers in the supply air ductwork in Wings 2, 3, 4, 5, 7, and 9.

Duct Washdown Upgrade: Upgrade the existing exhaust duct washdown system in Wings 3, 5, and 7. This includes replacement of piping, valves, and spray heads and installation of new flow measurement devices.

- **Sanitary Sewer Upgrades**

This subproject was completed during the 2nd Quarter of FY 1995.

- **Acid Vents and Drains Upgrades**

Aging piping and a lack of gradient in the acid drain system in the basement of the CMR Building has led to corrosion and clogging of the system. This upgrade includes evaluation and documentation of the existing system, prioritization of the system deficiencies, and cost estimates to correct each deficiency for Wings 3, 5, and 7. Construction will include replacement of piping and components including threaded nipples, fittings, valves, flanged fittings, and gaskets with compatible new components. Remaining system replacement will be incorporated in Phase 2.

8. Project Description, Justification and Scope (Continued)

- **Fire Hazard Analysis (Formerly Fire Protection Upgrades)**

  A Fire Hazard Analysis (FHA) on the CMR Building will be completed in accordance with DOE Order 5480.7A. A cost benefit analysis will be performed on the results of the FHA and the existing National Fire Protection Act (NFPA) 101 analysis to prioritize deficiencies. Identified required upgrades will be done as part of Phase 2.

- **Safety Analysis Report**

  Perform a complete safety analysis for the CMR Building operations. Activities include analysis, documentation, and review. Complete an Interim Safety Analysis Report (ISAR) to aid in determining the basis for long term upgrades for the CMR Building. Produce a Final Safety Analysis Report (FSAR) to define the safety envelope and the authorization basis for the operation of the CMR Building. The FSAR is to be produced in accordance with DOE Order 5480.23, and related standards for Nuclear Facility Safety Analysis Reports.

- **Engineering Assessments/CDR/EA**

  Engineering Assessment includes costs for the collection of cataloging of existing CMR facility drawings and the verification and updating of the ISAR drawing set. Work also includes a report of the existing drawing results, the development of CMR configuration controls, and design/construction interfaces in order to maintain up-to-date drawings.

  Phase 1 funding includes the development of the CDR for those items that have been identified and prioritized as a result of the Interim Safety Analysis Report (ISAR). They are comprised of those upgrade items that are required to extend the operational life of the facility for at least another 20 years based upon safety and compliance for present and future operations.

  An environmental assessment, including all aspects of Phase 2, is being prepared based upon the conceptual design report. This EA will assess the environmental impact of construction as represented by the Phase 2 scope of work.

b. CMR Phase 2 Upgrade

The Phase 2 components are needed to maintain infrastructure, improve safety for public and workers, and enhance environmental management.

TEC	Previous	FY 1995	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Date
$122,500	$0	$0	$6,140	$10,600	$30,400	$75,360	2nd Qtr. FY 1998 - 4th Qtr. FY 2002

Based upon completion of the CDR for the Phase 2 and 3 scope, the TEC for this phase is increased from $85,000,000 to $122,500,000. The construction start date changed from 2nd Qtr. FY 1996 to 2nd Qtr. FY 1998 and the end date changed from 4th Qtr. FY 2003 to 4th Qtr. FY 2002. (Phase 3 scope, cost, and schedule are contingent upon future programmatic requirements based upon the results of the Programmatic Environmental Impact Statement (PEIS) and Site Wide Environmental Impact Statement (SWEIS). Therefore, detailed scope, cost, and schedule for Phase 3 are not specifically addressed.)

The FY 1997 funds for Phase 2 will be used to begin Wings 2 and 4 safe standby, complete Phase 2 Title I, begin Phase 2 Title II and Title III activities and cover project and construction management costs.

1. Title and Location of Project: CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No.: 95-D-102 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The additional long term upgrades developed by the Phase 2 CDR process are:

- **Seismic and Tertiary Confinement**

  Structural strengthening of Wings 3, 5, 7, and 9 to meet the seismic criteria for hazard Category 2 operations. Modification of the existing exterior structural openings in these wings to create a tertiary confinement barrier. Structural strengthening of the Administration Wing (which houses the Operations Center) to meet the seismic criteria for worker safety.

- **Security (Related to Tertiary Confinement)**

  Hardening of building openings of Wings 3, 5, 7 and 9 to security requirements which are also being modified for tertiary confinements. These openings include doors, windows, louvers, etc. This upgrade will be integral with seismic tertiary confinement.

- **Ventilation Confinement Zone Separation (Winds 3, 5, 7, and 9)**

  Renovate the mechanical systems and the related control systems in Wings 3, 5, 7, and 9 to replace components that are near the end of their useful lives and to improve confinement zone separation throughout each Wing. Architecturally modifying Wings 3, 5, and 7 to create a secondary confinement barrier. Providing an alarm for each enclosure to alert workers when the mechanical systems are not operating according to safety standards for the facility. Providing a central, chilled water plant to support the mechanical systems' renovations to the building.

- **Standby Power/Communications**

  Provide standby electrical power to operate the most important mechanical systems in Wings 3, 5, 7, and 9 at a reduced level sufficient to maintain negative pressure in the laboratory enclosures. This will reduce possibility of spread of contamination due to the loss of offsite power to the ventilation system. In addition, emergency communications systems in Wings 3, 5, 7, and 9 will be improved, thereby improving worker safety.

- **Wing 1 Upgrades (HVAC)/Wing 1 Interim Decontamination**

  Decontaminate the unoccupied, contaminated laboratories in Wing 1, modifying the HVAC exterior intake and exhaust locations for Wing 1 to improve worker health and safety.

- Operations Center

  Improve the ergonomics and reliability of the building's central monitoring and control capabilities.

- Chilled Water Upgrade Wings 3, 5, and 7 e/

  Replace the 2 existing 40 year old evaporative coolers in each Wing with a single refrigeration unit to provide chilled water for process equipment. Also, replace the existing 40 year old process chilled water piping system with a new piping system.

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e/ Phase 2 additional scope added to support long-term infrastructure upgrades. Each activity was added at the end of the CDR process and are pre-CDR estimates. Conceptual design effort for these activities is ongoing.

8. Project Description, Justification and Scope (Continued)

- Main Vault e/

  CAMs - Install new Canberra CAMs in the vault, ASM 2000 controllers in the anteroom, and incorporate remote monitoring (similar to Wing CAM systems) to the ES&H office. This upgrade would utilize the generic design established for the Wing CAMs and add the appropriate layout for the vault.

  Dampers - Install seismic dampers in the ventilation ducts of the main vault.

- Acid Vents and Drains Wings 3, 5, and 7 e/

  Correct deficiencies not covered in Phase 1 upgrades (Phase 1 addresses major leaks and flanges). Correct area with inadequate slope, replace branches and risers to laboratories as required, and upgrade the ventilation of the system.

- Fire Protection Upgrades e/

  Correct fire protection system deficiencies as identified in the 1992 NFPA 101 analysis, and the Fire Hazard Analysis (to be completed in Phase 1). Deficiencies will be prioritized in a cost benefit analysis which will be completed in Phase 1. Examples of current identified deficiencies are: Add check valves in fire protection risers, add backflow preventors in the sprinkler system, provide fire dampers in duct penetrations, replace fire alarm panels.

- Operations Center Standby Power e/

  Install transfer capability and wiring from the standby power generator (Phase 2) to the CMR Operation Center to support all functions or systems required to recover the facility after significant accidents.

- Exhaust Duct Washdown Recycling System Wings 3, 5, and 7 e/

  This recycling system will significantly reduce the waste stream from the facility. The reduction in the waste stream will reduce the demands on the current waste treatment plant.

- **Wings 2 and 4 Safe Standby** e/

  This upgrade includes the costs necessary to establish a safe standby condition for Wings 2 and 4 pending future programmatic use. Included are identification of safety systems required for safe standby deactivation/decontamination of abandoned systems and gloveboxes, removal of all radioactive materials and chemicals, and removal or stabilization of all loose contamination.

- **ES&H Support Activities**

  Additional enhanced ES&H support activities based on the lessons learned from Phase 1 are currently being evaluated as part of the additional conceptual effort. These are beyond the costs identified in the CDR. These efforts include waste management, waste minimization, ES&H support, risk analysis, and ES&H equipment including personnel protective equipment. These costs may be added to the project TEC upon completion of an estimate validation to be completed during the 1st Quarter of FY 1996.

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e/ Phase 2 additional scope added to support long-term infrastructure upgrades. Each activity was added at the end of the CDR process and are pre-CDR estimates. Conceptual design effort for these activities is ongoing.

8. Project Description, Justification and Scope (Continued)

c. CMR Phase 3 Upgrades

The work to be performed in Phase 3 is dependent upon future programmatic requirements and the results of the Programmatic Environmental Impact Statement and Site-Wide Environmental Impact Statement presently being accomplished. Therefore, detailed scope, cost and schedule for Phase 3 are not specifically addressed at this time.

9. Detail of Cost Estimate b/ f/

SUBPROJECTS	PM & S	ED&I	CONST	STD EQUIP	CONTINGENCY	TEC
a. Phase 1						
Sanitary Sewer Modifications	$ 0	$ 64	$ 68	$ 0	$ 13	$ 145
Acid Vents and Drain Modifications	0	403	846	0	119	1,368
Stack Monitors	0	939	335	761	195	2,230
CAM Upgrades	0	526	1,271	1,274	294	3,365
Electrical Upgrades	0	2,841	11,305	1,814	922	16,882
Electrical Upgrades to Support Wings 2 and 4 Safe Standby	0	75	1,849	0	384	2,308
Ductwork Modifications	0	148	997	0	109	1,254
Fire Hazard Analysis (formerly Fire Protection Upgrades)	0	162	226	0	37	425
Blowers and Motors	0	251	673	177	105	1,206
UPS System	0	132	938	0	102	1,172
Engineering Assessment/Phase 2 Planning	884	1,751	0	0	252	2,887
CDR	0	3,955	0	0	378	4,333 g/
Environmental Assessment	0	154	0	0	15	169 g/
Safety Analysis Report	0	2,348	0	0	225	2,573
Title III	1,231	0	0	0	118	1,349
ES&H	1,219	0	0	0	117	1,336
Project Controls	1,476	0	0	0	141	1,617
Administration and Support	1,475	0	0	0	141	1,616
Construction Management	1,826	0	0	0	175	2,001
Acquisition	269	0	0	0	26	295
Project Management and Support	2,800	0	0	0	269	3,069
Phase 1 Subtotal	$ 11,180	$ 13,749	$ 18,508	$ 4,026	$ 4,137	$ 51,600

b/ Changes in project costs and schedules are based upon the 1995 Phase I baseline change proposal and completion of the conceptual design report for the entire Phase 2 and 3 scope. Phase 3 scope, cost, and schedule are contingent upon future programmatic requirements based upon the results of the Programmatic Environmental Impact Statement (PEIS) and Site Wide Environmental Impact Statement (SWEIS). Therefore, detailed scope, cost, and schedule for Phase 3 are not specifically addressed.

f/ In addition, the estimates do not include site overhead/landlord costs since FY 1992 was the first year of project funding.

g/ CDR and Environmental Assessment costs are carried as part of the Phase 1 Engineering Assessment/Phase 2 Planning Activities and are broken out for clarity.

1. Title and Location of Project: CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)

2a. Project No.: 95-D-102
2b. Construction Funded

9. Detail of Cost Estimate b/ f/ (Continued)

SUBPROJECTS	PM & S	ED&I	CONST	STD EQUIP	CONTINGENCY	TEC
b. Phase 2						
Seismic and Tertiary Confinement	$ 0	$ 0	$ 6,419	$ 0	$ 1,204	$ 7,623
Security (related to Tertiary Confinement)	0	0	851	0	170	1,021
Ventilation/Confinement Separation	0	0	40,479	0	10,807	51,286
Standby Power/Communications	0	0	2,855	0	556	3,411
Wing 1 Upgrades (HVAC)/Wing 1 Interim Decontamination	0	0	358	0	94	452
Operations Center	0	0	585	0	114	699
Subtotal Phase 2	$ 0	$ 0	$ 51,547	$ 0	$ 12,945	$ 64,492
Additional Scope Items						
Standby Power for Operations Center	$ 0	$ 0	$ 320	$ 0	$ 80	$ 400 e/
Wings 2 and 4 Safe Standby	0	0	3,845	0	1,295	5,140 e/
Chilled Water Upgrade	0	0	1,200	0	300	1,500 e/
Main Vault Upgrades	0	0	385	0	96	481 e/
Acid Vents and Drains Upgrades	0	0	6,400	0	1,600	8,000 e/
Fire Protection Upgrades	0	0	2,300	0	575	2,875 e/
Exhaust Duct Washdown Recycle	0	0	1,800	0	450	2,250 e/
Subtotal Additional Scope Items	$ 0	$ 0	$ 16,250	$ 0	$ 4,396	$ 20,646
ED&I/Project Management						
Title I	$ 0	$ 5,480	$ 0	$ 0	$ 1,017	$ 6,497 h/
Title II	0	5,260	0	0	961	6,221 h/
Title III	0	4,736	0	0	801	5,537 h/
Project Management/Construction Management	16,621	0	0	0	2,486	19,107 h/
Subtotal ED&I/Project Management	$ 16,621	$ 15,476	$ 0	$ 0	$ 5,265	$ 37,362
Phase 2 Subtotal	$ 16,621	$ 15,476	$ 67,797	$ 0	$ 22,606	$122,500
Total Estimated Cost	$ 27,801	$ 29,225	$ 86,305	$ 4,026	$ 26,743	$174,100

b/ Changes in project costs and schedules are based upon the 1995 Phase I baseline change proposal and completion of the conceptual design report for the entire Phase 2 and 3 scope. Phase 3 scope, cost, and schedule are contingent upon future programmatic requirements based upon the results of the Programmatic Environmental Impact Statement (PEIS) and Site Wide Environmental Impact Statement (SWEIS). Therefore, detailed scope, cost, and schedule for Phase 3 are not specifically addressed.

f/ In addition, the estimates do not include site overhead/landlord costs since FY 1992 was the first year of project funding.

e/ Phase 2 additional scope added to support long-term infrastructure upgrades. Each activity was added at the end of the CDR process and are pre-CDR estimates. Conceptual design effort for these activities is ongoing.

h/ Estimates include CDR estimates for original scope and pre-CDR estimates for additional scope.

1. Title and Location of Project: CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)

2a. Project No.: 95-D-102
2b. Construction Funded

9. Detail of Cost Estimate b/ f/ (Continued)

Contingencies represent approximately 21 percent of costs. The laboratory is using escalation rates of 2.6% for 1994, 2.7% for 1995, 3.0% for 1996, 3.3% for 1997 and 1988, 3.2% for 1999, and 3.1% for 2000 through 2002. These rates were taken from Departmental Price Change Index, FY 1994 Guidance, dated August 1992.

Engineering, design, and inspection cost-of-services were estimated from historical records and experience with drawing and man hour requirements established for each discipline, ED&I represent about approximately 34% of construction costs.

The contingency rate is the result of a contingency analysis of various items based on relative risk ratings compared to ratings of relative importance of a particular item to the project. The analysis of various items results in different contingency rates depending on the item. The contingency rate shown here is an average rate resulting from the contingency analysis and weighing according to the item's relative cost.

10. Method of Performance

Procurement will be accomplished under fixed-price subcontracts awarded on the basis of competitive bidding. Consideration will be given to cost-plus-fixed fee on decontamination and refurbishment work on the CMR. Upgrades construction will be done by fixed price contractors and the Laboratory's support services subcontractor. The operating contractor and contracted Architect-Engineers will perform construction inspection.

b/ Changes in project costs and schedules are based upon the 1995 Phase I baseline change proposal and completion of the conceptual design report for the entire Phase 2 and 3 scope. Phase 3 scope, cost, and schedule are contingent upon future programmatic requirements based upon the results of the Programmatic Environmental Impact Statement (PEIS) and Site Wide Environmental Impact Statement (SWEIS). Therefore, detailed scope, cost, and schedule for Phase 3 are not specifically addressed.

f/ In addition, the estimates do not include site overhead/landlord costs since FY 1992 was the first year of project funding.

1. Title and Location of Project: CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)

2a. Project No.: 95-D-102
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1996	FY 1997	Outyear	Total	
a. Total project costs b/						
1. Total facility costs						
(a) Line item (Section 9)	$ 31,685	$ 18,000	$ 14,023	$110,392	$174,100	
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	
(c) Operating expense funded equipment	0	0	0	0	0	
(d) Inventories	0	0	0	0	0	
Total facility costs (Federal and Non-Federal)	$ 31,685	$ 18,000	$ 14,023	$110,392	$174,100	
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	
(b) Conceptual design costs	0	0	0	0	0	g/
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	
(d) NEPA documentation costs	0	0	0	0	0	g/
(e) Other project related costs	5,435	3,110	2,423	38,567	49,535	
(f) Total other project costs	$ 5,435	$ 3,110	$ 2,423	$ 38,567	$ 49,535	
(g) Total project costs	$ 37,120	$ 21,110	$ 16,446	$148,959	$223,635	
(h) LESS: Non-Federal contribution	0	0	0	0	0	
(i) Net Federal total project costs (TPC)	$ 37,120	$ 21,110	$ 16,446	$148,959	$223,635	

b. Related annual costs (estimated life of project--20 to 40 years)	
1. Facility operating costs	$ 10,000
2. Facility maintenance and repair costs	2,500
3. Programmatic operating expenses directly related to the facility	30,000
4. Capital equipment not related to construction but related to the programmatic effort in the facility	1,000
5. GPP or other construction related to programmatic effort in the facility	1,000
6. Utility costs	2,450
7. Other costs	0
Total related annual costs	$ 46,950

g/ CDR and Environmental Assessment costs are carried as part of the Phase 1 Engineering Activities/Phase 2 Planning Activities and are broken out for clarity.

1. Title and Location of Project: CMR Upgrades Project, Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No.: 95-D-102 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- Narrative not required.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- Narrative not required.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- No research and development is necessary to establish the specific design and construction features.
      (b) Conceptual design -- None. Phase 1 line item. g/
      (c) Decontamination and Decommissioning (D&D) -- None.
      (d) NEPA documentation -- None. Phase 1 line item costs include NEPA documentation costs. g/
      (e) Other project related costs -- Operational testing and acceptance, including the Operational Readiness Review has been allowed on selected major system upgrades. Training materials, programs, and test/certification will be updated to reflect the change in site operations resulting from selected systems upgrades becoming operational. See also paragraph 17, Environmental Impacts, below.

b. Related annual costs
   1. Facility operating costs -- The CMR facility were estimated from the FY 1995 budget requirements for CMR operations.
   2. Facility maintenance and repair costs -- These are based upon current budget requirements for CMR maintenance.
   3. Programmatic operating expenses directly related to the facility -- The programmatic effort which relies upon the direct and primary use of the CMR facilities was established at the FY 1992 level-of-effort based on the unique capabilities of handling radioactive materials. This assumes a constant level-of-effort in these programs.
   4. Capital equipment requirements for programmatic support were estimated at $1,000,000/year based upon recent trends in CMR programmatic needs.
   5. GPP or other construction related to programmatic effort -- These are anticipated to be approximately $1,000,000/year based upon current CMR programmatic needs.
   6. Utility costs -- These are estimated at $2,450,000/year based upon current trends in CMR operations.
   7. Other costs -- None anticipated.

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g/ CDR and Environmental Assessment costs are carried as part of the Phase 1 Engineering Assessment/Phase 2 Planning Activities and are broken out for clarity.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase V, Various Locations	2a. Project No.: 94-D-102 2b. Construction Funded

SIGNIFICANT CHANGES

- The TEC was increased from $34,300,000 to $36,987,000 and the TPC from $34,600,000 to $37,387,000 to add a second source of power for the 115 kilovolt loop. This is done to retain the same power redundancy as the existing Sandia Power System.

- The construction schedule is extended from 1st Qtr. FY 1998 to the 2nd Qtr. FY 1998 because of the addition of the second power source.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase V, Various Locations

2a. Project No.: 94-D-102
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1994

3b. A-E Work (Titles I & II) Duration: 12 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $34,300
Total Project Cost (TPC) -- $34,600

4a. Date physical Construction Starts: 2nd Qtr. FY 1994

4b. Date Construction Ends: 2nd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $36,987
TPC -- $37,387

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1994	$ 4,000	$ 0	$ 4,000	$ 419
1995	13,000	0	13,000	5,365
1996	12,200	0	12,200	17,318
1997	7,787	0	7,787	10,885
1998	0	0	0	3,000

8. Project Description, Justification and Scope

The TEC was increased from $34,300,000 to $36,987,000 and the TPC from $34,600,000 to $37,387,000 to add a second source of power for the 115 kilovolt loop. This is done to retain the same power redundancy as the existing Sandia Power System.

This series of projects provides for the construction of new facilities, and modifications, relocations, and additions to existing facilities for the nuclear stockpile stewardship facilities at Sandia National Laboratories (SNL), Los Alamos National Laboratory, Lawrence Livermore National Laboratory, and the Nevada Operations Office. These projects are a multiyear capital investment program to provide new or additional capabilities or capacities to revitalize the nuclear weapons stockpile stewardship complex. These new and modified facilities will replace or add to existing facilities that are overaged, deteriorated, overcrowded, or are inadequate to preserve capabilities required for the current and future weapons stockpile stewardship program.

The nuclear weapons stockpile stewardship program is made up of a highly complex set of activities extremely dependent on current and advanced technology facilities and equipment to meet its varied needs. The successful performance of the stockpile stewardship program contributes directly to the quality and reliability of the nuclear weapons stockpile. In addition to unremitting requirements for reliability and performance, we are committed to pursue new safety and safeguards features for the enduring stockpile. These standards require innovative physics concepts and designs, the development of new materials and material applications, and extension of both engineering and manufacturing technologies beyond the current "state-of-the-art." Without providing the facilities and equipment necessary for this stockpile stewardship effort, the United States risks losing its superiority in nuclear weapons technologies.

1. Title and Location of Project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase V, Various Locations (Continued)	2a.Project No.: 94-D-102 2b.Construction Funded

8. Project Description, Justification and Scope (Continued)

The revitalization effort was initiated in FY 1984 with Project 84-D-107, Nuclear Testing Facilities Revitalization, and was followed in FY 1985 with Project 85-D-102, Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase I, and in FY 1988 with Project 88-D-106, Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase II, in FY 1990 with Project 90-D-102, Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase III and in FY 1992 with Project 92-D-102, Nuclear Weapons Research, Development and Testing Facilities Revitalization, Phase IV. These projects were defined based on needs identified by representatives from the Albuquerque and Nevada Field Offices, and the three weapons laboratories. Since the initiation of these projects, all aspects of the stockpile stewardship complex capital asset base continued to be critically reviewed and have resulted in the initiation of this line item project which contains one subproject.

The consolidation of the nuclear weapons stockpile stewardship revitalization needs into one project data sheet focuses the issue of the total needs of the stockpile stewardship program. With the decreased demand for new weapon systems, this project is oriented toward preserving the critically needed infrastructure at the laboratories.

Subproject 01 - Power System Modernization, Sandia National Laboratories, Albuquerque, New Mexico.

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$36,987	$4,000	$13,000	$12,200	$7,787	$0	1st Qtr. FY 1994 - 2nd Qtr. FY 1998

This project will replace the electrical transmission and distribution service to Sandia National Laboratories/New Mexico with a system that meets existing codes and provides for safety, flexibility, growth, and redundancy. Power Systems Modernization will bring building transformers and manholes in all Tech Areas into compliance with National Electric Code and National Electric Safety Code standards, convert the existing 2400 V ungrounded distribution system to a 12.47kV grounded system, and complete a loop of 115kV transmission lines around Tech Area I and provide a second source of power.

This project will:

- Replace all ground-mounted conventional transformers and transclosure-mounted transformers in Tech Areas I, II and IV.
- Convert all other transformers in Tech Areas I to 12.47kV grounded wye looped system from an undergrounded delta system.
- Replace all transclosure mounted and ground mounted conventional transformers with three-phase, padmount 12.47kV transformers in Sandia's remote areas.
- Install 12.47kV cable and duct from the nearest electrical manhole to the new building switchgear and padmount transformer.
- Extend the 115kV system approximately two miles to complete a loop around Tech Area I.

The existing transmission and distribution system at Sandia National Laboratories is antiquated and, in numerous instances, is in violation of National Electric Code standards. These violations present many life threatening hazards to Sandia workers and have potentially detrimental effects on the SNL mission.

Out of 95 manholes at Sandia, 56 have non-submersible topboxes. Some of these have already failed when exposed to rain or ground water. This presents a hazard to a worker attempting to test or maintain electrical equipment in one of these manholes. Additionally, many of these

8. Project Description, Justification and Scope (Continued)

manholes do not meet the minimum safe working clearance criteria required by the National Electric Code, again exposing workers to unnecessary risk. There are 31 ground mounted conventional building transformers and 37 transclosure mounted installations that do not meet the standard of two separate conscious acts to come into contact with an energized system. A worker or unqualified person could come into contact with an energized system by a single conscious act such as; climbing a fence, opening a gate, or opening a transclosure door.

The existing ungrounded distribution system is itself a hazard to workers. The first fault on this system is undetectable. If a fault has occurred and a worker attempts to place a ground on the system to perform maintenance, the ground is in effect the second fault on the system. The result would be catastrophic and would, in all likelihood, kill the worker. This is being prevented now by placing administrative controls on the worker to always check a system for a fault before performing any maintenance. But administrative controls do not provide the level of safety of a properly engineered system.

Because of the configuration of the tapboxes, every transformer on a feeder has to be de-energized in order to work on any part of the system. This also places the worker at risk since the possibility of a feeder being re-energized while a worker is working on a remote part of the feeder is very real. A 1987 power systems study recommended that Sandia and Kirtland Air Force Base replace the 46kV transmission system with a 115kV system. The existing system has very limited load growth capability and is fed from a single source. This project will provide a reliable ring bus. As a result of this study, DOE, Sandia, and Kirtland Air Force Base reached an agreement in November 1987, to connect all future loads to a 115kV system. At present, Sandia/Kirtland is virtually the only remaining PNM (local utility company) customer to use a 46kV system. As a result, PNM has no plans to expand the system beyond its present capacity. However, PNM does maintain an extensive 115kV system and therefore has the necessary equipment and redundancy to provide backup in the event of a single contingency failure. Much of Sandia's electrical equipment is over 40 years old and near the end of its normal life expectancy. Hi-Pot testing is continually identifying 2400V distribution cable in need of replacement. This replacement has to be delayed until it can be scheduled on a weekend to minimize mission degradation. This strategy is unreliable, unsafe, and results in higher maintenance costs. The new system will provide the looping necessary to be able to isolate the problem and repair it immediately. This project will allow Sandia to standardize its equipment with PNM and Kirtland and better coordinate spare stock requirements. The project can provide cost savings not only through reduced line losses, but by facilitating the installation of far better energy efficient transformers.

The addition of the second source 115kV power source maintains the same level of redundancy as exists with the current Sandia Power System.

The present duct banks which contain 9, 12, or 18 conduits are also a concern due to the cable derating factor that has to be considered for cooling. The new system will reduce the number and size of the cables, thereby reducing the cable derating problem.

The timing of the project is to expedite, to the greatest extent possible, the remediation of numerous life-threatening and mission-impacting deficiencies within the Sandia National Laboratories electrical transmission and distribution system. Deferral or denial of the project will sustain an unacceptable situation from a safety perspective, and could ultimately result in injury or serious mission degradation.

The FY 1997 appropriation will be used to complete the replacement or correction of ground mounted conventional building transformers and transclosure mounted transformers in Tech Area I, II and IV. The appropriation will also be used to complete the design of the conversion of the distribution system in Tech Area I to 12.47kV.

1. Title and Location of Project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase V, Various Locations (Continued)

2a. Project No.: 94-D-102

2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 6,418
1. Engineering, design and inspection at approximately 14.6 percent of construction costs, Item c (Design, Drawings, and Specifications: $3,210)	$ 3,781	
	1,600	
2. Construction management (Item c)	1,037	
3. Project management at 4 percent of construction costs (Item c)		0
b. Land and land rights		25,936
c. Construction costs	0	
1. Improvements to land	0	
2. Buildings	0	
3. Other structures	25,936	
4. Utilities	0	
5. Special equipment		0
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		32,354
h. Subtotal (a through g)		4,633
i. Contingencies at approximately 14.3 percent of above costs		$36,987
j. Total Line Item Cost (Section 11.a.1.(a)		0
k. LESS: Non-Federal contribution		$36,987
l. Net Federal total estimated cost (TEC)		

This estimate was prepared by Sandia National Laboratories (SNL) on the basis of an in-house conceptual design report. The conceptual design estimate has been escalated to the anticipated mid-point of construction per DOE guidance dated August 1991. The escalation rates for the four categories of construction are: (1) 1.131, (2) 1.184, (3) 1.225, and (4) 1.225.

10. Method of Performance

Design and procurement and construction of 115kV transmission lines will be performed under fixed-price contracts awarded on the basis of competitive bidding. All other sub-projects will be accomplished with SNL, Albuquerque performing the design through in-house capabilities and A-E's performing quality assurance for each sub-project, and awarding multiple discrete construction packages.

1. Title and Location of Project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase V, Various Locations (Continued)

2a. Project No.: 94-D-102

2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 419	$ 5,365	$ 17,318	$ 10,885	$ 3,000	$ 36,987
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 419	$ 5,365	$ 17,318	$ 10,885	$ 3,000	$ 36,987
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	120	0	0	0	0	120
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	10	0	0	0	0	10
(e) Other project related costs	120	50	50	50	0	270
(f) Total other project costs	$ 250	$ 50	$ 50	$ 50	$ 0	$ 400
(g) Total project costs	$ 669	$ 5,415	$ 17,368	$ 10,935	$ 3,000	$ 37,387
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 669	$ 5,415	$ 11,368	$ 10,935	$ 3,000	$ 37,387

b. Related annual costs (estimated life of project--20 to 40 years)	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 0

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

Not applicable.

1. Title and location of project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase III, Various Locations	2a. Project No.: 90-D-102 2b. Construction Funded

SIGNIFICANT CHANGES

- Construction end date changed from 4th Qtr. FY 1999 to 3rd Qtr. FY 1998 due to the revision in scope requirement for the Fiber Optics Communications Backbone system at LLNL.

- TEC was decreased from $109,795,000 to $104,409,000 and the TPC from $111,645,000 to $106,259,000 due to the downscoping of the Fiber Optics Communication backbone system and cost savings from the Electrical Power System Replacement and Upgrade project.

Weapons Stockpile Stewardship

1. Title and location of project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase III, Various Locations

2a. Project No.: 90-D-102
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1990

3b. A-E Work (Titles I & II) Duration: Ongoing

4a. Date Physical Construction Starts: 3rd Qtr. FY 1991

4b. Date Construction Ends: 3rd Qtr. FY 1998

5. Previous Cost Estimate:
Total Estimate Cost (TEC) -- $109,795
Total Project Cost (TPC) -- $111,645

6. Current Cost Estimate:
TEC -- $104,409
TPC -- $106,259

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1990	$ 1,000	$ (15) a/	$ 985	$ 690
1991	9,600	1,088 b/	10,688	1,232
1992	22,100	0	21,992	6,769
1993	40,120	0	40,228	10,676
1994	20,555	0	18,527	18,379
1995	4,900	(1,139) c/	4,650	22,886
1996	6,200	0	6,200	26,620
1997 d/	0	0	1,139	16,768
1998	0	0	0	389
1999	0	0	0	0

No funding for this project is requested in FY 1997. This data sheet details scope and schedule changes to this project since submission of the FY 1996 Congressional Budget Request.

a/ Reflects sequestration of funds for FY 1990.
b/ Reflects reprogramming to effect corrective action on construction projects, in accordance with July 23, 1991 correspondence from the Secretary of Energy to Congressional committees (91-R-18).
c/ Application of general reduction included in FY 1995 appropriation.
d/ Reflects cost savings from the Electrical Power System Replacement and Upgrade project.

8. Project Description, Justification and Scope

The construction end date changed from 4th Qtr. FY 1999 to 3rd Qtr. FY 1998 due to the revision in scope requirement for the Fiber Optics Communications Backbone system at LLNL. The total estimated cost (TEC) was decreased from $109,795,000 to $104,409,000 and the TPC from $111,645,000 to $106,259,000 due to the downscoping of the Fiber Optics Communication backbone system and cost savings from the Electrical Power System Replacement and Upgrade project.

This project provided for the construction of new facilities, and modifications, relocations, and additions to existing facilities for the Nuclear Weapons Stockpile Stewardship facilities at the Los Alamos National Laboratory (LANL), the Lawrence Livermore National Laboratory (LLNL), the Sandia National Laboratories (SNL), and the Nevada Test Site (NTS). This project was a multiyear capital investment program to provide new or additional capabilities or capacities to revitalize the nuclear weapons stockpile stewardship complex. These new and modified facilities replaced or added to existing facilities that were overaged, deteriorated, overcrowded, or inadequate to preserve capabilities required for the current and future nuclear stockpile stewardship program.

The nuclear weapons stockpile stewardship program is made up of a highly complex set of activities extremely dependent on current and advanced technology facilities and equipment to meet its varied needs. The successful performance of the program contributes directly to the quality and reliability of the nuclear weapons stockpile. In addition to unremitting requirements for reliability and performance, we are committed to pursue new safety and safeguards features for the enduring stockpile. These standards require innovative physics concepts and designs, the development of new materials and material applications, and extension of both engineering and manufacturing technologies beyond the current "state-of-the-art." Without providing the facilities and equipment necessary for this effort, the United States risks losing its superiority in nuclear weapons technologies.

The revitalization effort was initiated in FY 1984 with Project 84-D-107, Nuclear Testing Facilities Revitalization, and was followed in FY 1985 with Project 85-D-102, Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase I, and in FY 1988 with Project 88-D-106, Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase II. These projects were defined based upon needs identified by representatives from the Albuquerque and Nevada Field Offices, and the three weapons laboratories. Since the initiation of these projects, all aspects of the stockpile stewardship complex capital asset base continued to be critically reviewed and have resulted in the initiation of this line item project which contains six subprojects.

The consolidation of the nuclear weapons stockpile stewardship revitalization needs into one project data sheet focuses the issue of the total needs of the program. With the decrease in demand for new weapon systems, this project is oriented towards preserving the critically needed infrastructure at the laboratories.

Full funding has been provided on all subprojects through prior year appropriations. These projects are:

Subproject 01 - Utilities Upgrade - SNLL Main Electrical Service and Switchgear - Sandia National Laboratories, Livermore, California

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyears	Construction Start - Completion Dates
$5,300	$5,300	$0	$0	$0	$0	4th Qtr. FY 1991 - 4th Qtr. FY 1995

8. Project Description, Justification and Scope (Continued)

Subproject 03 - Electrical Power System Replacement and Upgrades, LLNL, California

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyears	Construction Start - Completion Dates
$28,386 d/	$28,200	$0	$186	$0	$0	1st Qtr. FY 1992 - 2nd Qtr. FY 1997

Subproject 04 - Power Distribution Systems, Nevada Test Site, Nevada

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyears	Construction Start - Completion Dates
$11,521	$12,660	($1,139) e/	$0	$0	$0	4th Qtr. FY 1991 - 4th Qtr. FY 1996

Subproject 06 - Technology Support Center - SNL, Albuquerque, New Mexico

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyears	Construction Start - Completion Dates
$30,000	$26,000	$4,000	$0	$0	$0	2nd Qtr. FY 1992 - 2nd Qtr. FY 1995

a. Utilities/Infrastructure Support Facilities, Various Locations

These subprojects cover general purpose facilities at various DOE locations that are an integral part of the installation support infrastructure. Included are basic utility systems, such as electrical power distribution, sewage, roads, parking lots, gas distribution, water supply, and the like. Many of these facilities were constructed during the 1940s to World War II specifications with a 10-year maximum life expectancy. Many of them are now deteriorated beyond economic repair and do not meet present-day standards for safety and environmental protection.

The FY 1997 funding will be used to continue the construction of these subprojects.

1. Subproject 02 - Site 300 Facilities Revitalization - Part I, Livermore, California

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyears	Construction Start - Completion Dates
$27,400	$21,200	$900	$5,300 f/	$0	$0	1st Qtr. FY 1991 - 2nd Qtr. FY 1998

d/ Reflects cost savings from the Electrical Power System Replacement and Upgrade project, previous TEC was $31,000.
e/ Source of funding to support application of general reduction included in FY 1995 appropriation.
f/ Reflects application of $1,900 of $2,614 cost savings from the Electrical Power System Replacement Upgrade project to complete funding in FY 1996.

8. Project Description, Justification and Scope (Continued)

2. Subproject 05 - Fiber Optics Communication Backbone System, LLNL, California

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyears	Construction Start - Completion Dates
$1,802	$1,088	$0	$714 f/	$0	$0	3rd Qtr. FY 1992 - 3rd Qtr. FY 1998

This project has been rescoped to provide the minimum infrastructure for future fiber optics needs.

This project has completed the design for eight security hardened Node building expansions. The construction of these hardened Node building expansions is no longer required due to a change of DOE security requirements.

The project will upgrade existing Node buildings to a "secure condition" per current security requirements in order to satisfy the current and emerging electronic communications needs, with respect to classified use, in the programmatic areas of Weapons, Lasers, and Chemistry.

Fiber optic cable will be installed and terminated in equipment racks in various combinations of Node buildings and programmatic buildings associated with Weapons, Lasers, and Chemistry.

This project will install single mode and multi-mode fiber optic cable underground to provide the infrastructure for a high-bandwidth backbone for electronic communications at LLNL. The fiber optic cable will be installed using the Nodal system topology introduced by the LLIX telephone project. It will take advantage of the ducts already in place. The cable will be installed between selective nodes buildings and between various program buildings and their associated nodes.

The multi-mode fiber optic cable will be used for classified network communications, and the single mode fiber optic cable will be used for both classified and unclassified network communications. This fiber will also be usable for other applications and specific point-to-point requirements. Besides satisfying Weapons Program needs, it will also be an institutional resource that assures adequate bandwidth availability for current and future program needs.

In addition to the pulling of the fiber optic cable, modifications to several of the Node buildings will be required to create both rack and floor space for the new cables being pulled into the Node buildings. As necessary, some of the Node buildings will also need to be secured because they will contain classified fiber optic cable.

The need for a site wide fiber optic cable facility is becoming more urgent as the demand for more high bandwidth communications to the desktop accelerates. The highest bandwidth communications backbone currently available to classified users is the coaxial cable broadband system of Closed LabNet which is limited to 10Mb/s. The existing Open LabNet backbone for unclassified users is running at 10Mb/s. This existing system is at maximum capacity and lacks sufficient bandwidth for future gigahertz networks, video, and visualization applications.

f/ Reflects application of $714 of $2,614 cost savings from the Electrical Power System Replacement Upgrade project to complete funding for this subproject in FY 1996.

8. Project Description, Justification and Scope (Continued)

Programmatic needs for fiber must be met in a timely and cost effective manner to best serve the Laboratory. It should not be necessary for each program to pull their own fiber when they need it. This practice results in many short fiber pulls of cables with too few fibers in them to satisfy other future needs. Also, this practice will prematurely fill precious limited underground duct capacity which would be extremely expensive to expand.

This project would create a fiber infrastructure which would satisfy current and future needs, while at the same time eliminating the need for frequent short fiber pulls and maximizing the use of the existing duct structure.

9. Details of Cost Estimate g/

	Total Cost
a. Design and Management Costs	
(1) Engineering, design, and inspection	
(2) Construction management	
(3) Project management	
b. Land and land rights	
c. Construction costs	
1. Improvements to land	
2. Buildings and building modifications	$ 104,409
3. Special equipment	
4. Utilities	
5. Demolition	
d. Standard equipment	
e. Major computer line items	
f. Removal cost less salvage	
g. Design and project liaison, testing, and checkout and acceptance	
h. Subtotal (a through g)	
i. Contingency	
j. Total line item cost (Section 11.a.1.(a))	
k. LESS: Non-Federal contribution	
l. Net Federal total estimated cost	$ 104,409

The estimates by location are as follows:

Los Alamos National Laboratory, New Mexico	$ 0
Nevada Test Site, Nevada	11,521
Lawrence Livermore National Laboratory, California	57,588
Sandia National Laboratories, New Mexico, and California	35,300
Total	$ 104,409

g/ This cost estimate is based upon completed individual conceptual design reports.

1. Title and Location of Project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase III, Various Locations (Continued) | 2a. Project No.: 90-D-102 | 2b. Construction Funded

10. Method of Performance

Design and procurement of the conventional facilities will be performed under negotiated architect-engineer contracts. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line Item (Section 9.j.)	$ 37,746	$ 22,886	$ 26,620	$ 16,768	$ 389	$ 104,409
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 37,746	$ 22,886	$ 26,620	$ 16,768	$ 389	$ 104,409
2. Other Project Costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design Costs	1,850	0	0	0	0	1,850
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project related costs	0	0	0	0	0	0
(f) Total other project costs	$ 1,850	$ 0	$ 0	$ 0	$ 0	$ 1,850
(g) Total project costs	$ 39,596	$ 22,886	$ 26,620	$ 16,768	$ 389	$ 106,259
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TEC)	$ 39,596	$ 22,886	$ 26,620	$ 16,768	$ 389	$ 106,259

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- None.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- None.
      (b) Conceptual design -- None.
      (c) Decontamination and Decommissioning (D&D) -- None.
      (d) NEPA Documentation -- None.
      (e) Other project related funding -- Requirements for these facilities are not considered to be significantly different from those of the facilities and equipment being replaced by this project. Therefore, no costs are shown.

1. Title and location of project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase II, Various Locations	2a. Project No.: 88-D-106 2b. Construction Funded

SIGNIFICANT CHANGES

- The total estimated cost (TEC) decreased from $390,119,000 to $303,959,000 and the total project cost (TPC) decreased from $392,950,000 to $336,590,000 due to the following changes:

  - The Dual-Axis Radiographic Hydrotest Facility subproject with a TEC of $81,400,000 and a TPC of $85,600,000 is removed from this line item and is submitted as DARHT project (97-D-102) at an increased TEC.

  - The FY 1998 appropriation request for $3,500,000 for Dormitories, NTS, is cancelled, as the project has been closed out at the current level of funding.

  - Reflects $160,000 reduction from subproject 04, Dormitories, and $1,100,000 from subproject 09, Construction Facilities - Area 6 which were used to offset the requirement for new obligated authority for other activities in FY 1996.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship

1. Title and Location of Project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase II, Various Locations

2a. Project No.: 88-D-106
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 3rd Qtr. FY 1988

3b. A-E Work (Titles I & II) Duration: 2nd Qtr. FY 1993 - 3rd Qtr. FY 1994

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $390,119
Total Project Cost (TPC) -- $392,950

4a. Date Physical Construction Starts: 2nd Qtr. FY 1988

4b. Date Construction Ends: 3rd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $303,959
TPC -- $306,590

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1988	$ 27,162	$ 0	$ 27,160	$ 4,980
1989	62,652	0	62,652	13,342
1990	78,640	(31,594) a/	46,966	35,882
1991	55,747	0	54,946	44,764
1992	53,608	0	54,347	44,339
1993	34,400	(3,500) b/	29,948	50,551
1994	22,624	0	22,561	53,734
1995	3,980	(1,260) c/	3,879	43,751
1996	1,500	0	1,500	12,616

8. Project Description, Justification and Scope

No funding is requested for this project in FY 1997. This data sheet details scope and schedule changes to this project since submission of the FY 1996 Congressional Budget Request.

a/ Reflects the sequestration of funds for FY 1990 and the FY 1990 Omnibus reprogramming approved by appropriations subcommittees.
b/ $3,500,000 redirected from prior year appropriation from Dormitories subproject at Nevada Test Site (NTS) to DARHT project, line item 97-D-102.
c/ Reflects $160,000 reduction from subproject 04, Dormitories, and $1,100,000 from subproject 09, Construction Facilities - Area 6 which were used to offset the requirement for new obligated authority for other activities in FY 1996.

1. Title and Location of Project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase II, Various Locations (Continued)	2a. Project No.: 88-D-106 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The total estimated cost (TEC) of this project decreased from $390,119,000 to $303,959,000 and the total project cost (TPC) decreased from $392,950,000 to $306,590,000 due to the removal of the Dual-Axis Radiographic Hydrotest (DARHT) Facility from this line item and other adjustments due to baseline changes. DARHT is now line item 97-D-102, Dual-Axis Radiographic Hydrotest Facility, Los Alamos National Laboratory.

This project was the third project in a multiphased effort to revitalize the stockpile stewardship complex. Prior projects were line item project 84-D-107 and Project 85-D-102.

This project provided for the construction of new facilities, modificatibns, and additions to existing facilities for the Nuclear Weapons Stockpile Stewardship facilities at the Los Alamos National Laboratory (LANL), the Lawrence Livermore National Laboratory (LLNL), the Sandia National Laboratories (SNL), the Nevada Test Site (NTS), and the North Las Vegas (NLV) ATLAS facilities. This project was a multiyear capital investment program to provide new or additional capabilities or capacities to revitalize the nuclear weapons RD&T complex. These new and modified facilities replaced or added to existing facilities that were overaged, deteriorated, overcrowded, or inadequate to preserve the capabilities required for the current and future nuclear research and development (R&D) program.

Full funding has been provided for all remaining subprojects through prior-year appropriations. These subprojects are:

- Subproject 01 - Integrated Materials Research Laboratory, Sandia National Laboratory, Albuquerque

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 27,900	$ 27,900	$0	$0	$0	$0	2nd Qtr. FY 1990 - 1st Qtr. FY 1995

- Subproject 02 - Defense Engineering Laboratory, Sandia National Laboratory, Livermore

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 45,600	$ 45,600	$0	$0	$0	$0	2nd Qtr. FY 1990 - 2nd Qtr. FY 1994

- Subproject 03 - Advanced Technology Laboratory, Nevada Test Site

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 3,140	$ 3,140	$0	$0	$0	$0	4th Qtr. FY 1988 - 3rd Qtr. FY 1991

8. Project Description, Justification and Scope (Continued)

- Subproject 04 - Dormitories, Nevada Test Site

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 2,029 d/	$ 2,189 e/f/	$-160 g/	$0	$0	$0	2nd Qtr. FY 1988 - 3rd Qtr. FY 1989

- Subproject 05 - High Intensity Source Laboratory, Nevada Test Site

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 2,091	$ 2,091 e/	$0	$0	$0	$0	4th Qtr. FY 1988 - 3rd Qtr. FY 1991

- Subproject 06 - Nuclear Test Technology Complex, Lawrence Livermore National Laboratory

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 64,635	$ 64,635	$0	$0	$0	$0	3rd Qtr. FY 1988 - 4th Qtr. FY 1994

- Subproject 07 - Materials Science Laboratory, Los Alamos National Laboratory

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 29,300	$ 29,300	$0	$0	$0	$0	4th Qtr. FY 1991 - 3rd Qtr. FY 1994

- Subproject 08 - Explosive Components Facility, Sandia National Laboratory, Albuquerque

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 27,800	$ 27,800	$0	$0	$0	$0	2nd Qtr. FY 1992 - 3rd Qtr. FY 1995

d/ Reduced requirements at the Nevada Test Site have allowed this subproject to be down-scoped from the previous TEC of $5,689.

e/ $39,000 of excess contingency funding from High Intensity Source Laboratory, NLV (previous TEC $2,130) transferred to restore contingency for Dormitories, NTS (previous TEC $5,650).

f/ $3,500 of this was redirected to the Dual Axis Radiographic Hydrotest Facility subproject for FY 1993 expenditures. The two Area 23 dormitories will not be completed due to complete test ban.

g/ Reflects $160 reduction from subproject 04, Dormitories which were used to offset the requirement for new obligated authority for other activities in FY 1996.

8. Project Description, Justification and Scope (Continued)

- Subproject 09 - Construction Facilities - Area 6, Nevada Test Site

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 28,824 h/	$ 29,924	$- 1,100 h/	$0	$0	$0	2nd Qtr. FY 1988 - 4th Qtr. FY 1995

Los Alamos National Laboratory (LANL), Los Alamos, New Mexico

- Subproject 10 - Dual-Axis Radiographic Hydrotest Facility (DARHT), Los Alamos National Laboratory

  This subproject is removed from this line item and is being submitted as 97-D-102, DARHT.

- Subproject 11 - Defense Programs Research Facility, Lawrence Livermore National Laboratory

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 72,640	$ 67,160	$ 3,980	$1,500	$0	$0	4th Qtr. FY 1988 - 4th Qtr. FY 1996

9. Details of Cost Estimate i/

	Total Cost
a. Design and management costs	
(1) Engineering, design, and inspection	
b. Land and land rights	
c. Construction costs	
1. Improvements to land	
2. Buildings and Building modifications	
3. Special equipment	$ 303,959
4. Utilities	
5. Demolition	
d. Standard equipment	
e. Major computer items	
f. Removal cost less salvage	
g. Design and project liaison, testing, checkout and acceptance	
h. Subtotal (a through g)	
i. Contingency	
j. Total line item cost (Section 11.a.1.(a))	
k. LESS: Non-Federal contribution	
l. Net Federal total estimated cost (TEC)	$ 303,959

h/ Reflects $1,100,000 from subproject 09, Construction Facilities - Area 6 which were used to offset the requirement for new obligated authority for other activities in FY 1996.

i/ This cost estimate is based upon completed individual conceptual design reports.

9. Details of Cost Estimate i/ (continued)

The estimates by location are as follows:

Nevada Test Site and North Las Vegas Facility, Nevada	$ 36,084
Lawrence Livermore National Laboratory, California	137,275
Los Alamos National Laboratory, New Mexico	29,300
Sandia National Laboratories, New Mexico, and California	101,300
Total	$ 303,959

10. Method of Performance

Design and procurement of the conventional facilities will be performed under negotiated architect-engineer contracts. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	Total
a. Total project costs					
1. Total facility costs					
(a) Line item (Section 9.j.)	$ 247,592	$ 43,751	$ 12,616	$ 0	$ 303,959
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0
(d) Inventories	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 247,592	$ 43,751	$ 12,616	$ 0	$ 303,959
2. Other project costs					
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	1,381	0	0	0	1,381
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0
(e) Standard equipment	0	0	1,250	0	0
(f) R&D and miscellaneous costs	0	0	0	0	0
(g) EIS	0	0	0	0	0
(h) Total other project costs	$ 1,381	$ 0	$ 1,250	$ 0	$ 2,631
(i) Total project costs	$ 248,973	$ 43,751	$ 13,866	$ 0	$ 306,590
(j) LESS: Non-Federal contribution	0	0	0	0	0
(k) Net Federal total project cost (TPC)	$ 248,973	$ 43,751	$ 13,866	$ 0	$ 306,590

i/ This cost estimate is based upon completed individual conceptual design reports.

1. Title and Location of Project: Nuclear Weapons Research, Development, and Testing Facilities Revitalization, Phase II, Various Locations (Continued)	2a. Project No.: 88-D-106 2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual costs

1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 0

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total Project Funding
   1. Other Project Funding
      (a) Conceptual Design Costs -- Conceptual design cost of $1,381,000 was necessary to develop cost estimate and construction schedule.

b. Other Related Funding Requirements
   1. The estimated programmatic life of these facilities varies by site and subproject.
   2. The other related funding requirements for these facilities are not considered to be significantly different from those of the facilities and equipment being replaced by this project. Therefore, no costs are shown.

WEAPONS STOCKPILE STEWARDSHIP
INERTIAL CONFINEMENT FUSION

MISSION:
The mission of the Inertial Confinement Fusion (ICF) program is twofold: (1) to investigate theoretical, experimental, and computational high energy density physics essential for stockpile stewardship and (2) to develop and utilize a laboratory-scale microfusion capability for defense and other applications. The program contributes to the nuclear weapons program through increased understanding of the phenomena that occur during a thermonuclear explosion and the simulation of weapon effects.

TECHNICAL BACKGROUND:
ICF uses focused energy from a "driver", typically a laser or ion beam accelerator, to implode and compress a small, spherical capsule shell containing deuterium and tritium (DT) fuel. The "inertia" of the mass of the compressed fuel keeps the reactants together long enough, under the proper conditions, for the ignition and burn to occur. The ICF capsule can be imploded in one of two ways: direct or indirect drive. In the direct drive approach, the driver energy is focused directly onto the capsule to drive the implosion. In the indirect drive approach, the driver energy is directed into a radiation enclosure, or hohlraum, generating a bath of soft x-rays which then drives the capsule. In either case, the irradiation energy is absorbed in the capsule's outer ablator layer. The heated ablator material rapidly blows off. The rocket-like reaction force causes the "pusher" and the remaining portion of the fuel capsule to spherically implode, compressing and heating the DT fuel.

The national ICF program has developed unique capabilities in pursuit of its mission. The laser and pulse power facilities developed under the ICF program, along with their diagnostic, modeling, and target fabrication components, represent the most advanced array of high energy density physics research capabilities in the world. These facilities support science based stockpile stewardship while advancing inertial fusion technology toward a laboratory ignition demonstration with multi-megajoule fusion yields. Over the next five years, most of the ICF resources are allocated to an integrated theoretical and experimental program (high energy density physics studies, target fabrication, laser science, computation, etc.) to advance the technology in support of achieving ignition. Demonstration of ignition and burn in the laboratory is the goal of the proposed National Ignition Facility (NIF), which would use glass laser technology and could be completed by 2002.

The ICF Program will attract and retain highly competent scientists and engineers within the weapons program and enable them to develop and maintain key skills requisite for weapons physics competency. Dual-use benefits of the ICF program include advanced technology development (e.g. optics, lasers, accelerators, materials, microfabrication), increased economic competitiveness, and contributions to basic research and development in high energy density plasma physics.

PROGRAM GOALS:
- Achieve ignition in the laboratory
- Provide access to physics regimes of interest in nuclear weapon design and investigate physics issues
- Expand the aboveground simulation capability for nuclear weapons effects
- Develop diagnostic instruments applicable to weapons research
- Develop and experimentally benchmark computational models by developing three-dimensional simulation capabilities
- Help to anticipate and respond to future national security threats (i.e. nuclear, etc.)
- Attract and retain highly competent scientists and engineers within the weapons program

WEAPONS STOCKPILE STEWARDSHIP - INERTIAL CONFINEMENT FUSION (continued).

PROGRAM FACILITIES:

- **Nova** a ten-beam glass laser located at Lawrence Livermore National Laboratory (LLNL). It is the program's major facility for research on indirect drive laser fusion, and has also made important contributions to stockpile stewardship and basic experiments on high energy density physics. This facility has been operating since 1985.
- **Trident** a smaller glass laser facility at Los Alamos National Laboratory (LANL) used for diagnostic testing and development, as well as weapons and basic physics experiments.
- **Beamlet** a scientific prototype of one beam of the NIF located at LLNL. It began operating experiments in 1994.
- **OMEGA** a 60 beam glass laser used primarily for research on direct drive laser fusion located at the University of Rochester's Laboratory for Laser Energetics (UR/LLE). This facility was upgraded beginning in FY 1991 and achieved Key Decision IV, Project Completion/Start Operations, in May, 1995.
- **Nike** a Krypton-fluoride (KrF) laser located at the Naval Research Laboratory (NRL). It was completed in FY 1995 and will be used primarily to define beam smoothness requirements for direct drive laser fusion.
- **Particle Beam Fusion Accelerator (PBFA II)** the world's most powerful light ion accelerator located at Sandia National Laboratories (SNL).

SIGNIFICANT CHANGES FROM FY 1996:

The significant increase in this program in FY 1997 reflects the request of the second year of line-item funding for the design of NIF. Total project costs in FY 1997 are $191.1 million, an increase of $130.1 million above the FY 1996 level. The increase reflects the shift from non-site specific preliminary design activities in FY 1996 to final detailed design and pre-construction, site specific activities in FY 1997. A decision to begin physical construction is scheduled for mid-FY 1997. The ICF Base Program is held to the FY 1996 level of effort and reflects productivity savings resulting from the Department's Strategic Alignment Initiative.

BUDGET CONTENTS:

The Inertial Confinement Fusion Program has the following major funding categories:

OPERATIONS AND MAINTENANCE (O&M):

- **INDIRECT DRIVE WITH GLASS LASER** supports laser technology development, optics manufacturing and processing, and target physics experiments utilizing the x-ray driven, indirect drive approach to inertial fusion.
- **NIF OTHER PROJECT COSTS** supports the other project (non-construction) costs associated with the NIF project as specified in the Construction Project Data Sheet.
- **DIRECT DRIVE WITH GLASS LASER** supports high performance direct drive cryogenic target implosion experiments utilizing glass laser technology.
- **KRYPTON FLUORIDE (KrF) LASER** supports experimental/theoretical direct drive planar foil research to evaluate target instability induced by laser nonuniformity.
- **LIGHT ION BEAMS** carries out experiments which support science based stockpile stewardship (SBSS) and NIF and develops light ion drivers for a future high-yield capability.
- **CAPSULE FABRICATION AND DEVELOPMENT** supports materials processing and characterization development of targets and hohlraums, including cryogenic targets required by NIF and the OMEGA laser.
- **OTHER** supports independent technical reviews (e.g. Inertial Confinement Fusion Advisory Committee), the National Laser Users Facility, other user activities, and technical support needs of the program.

NOTE: Capital equipment funding has been distributed to the appropriate O&M categories listed above consistent with Congressional direction.

CONSTRUCTION:

- **NIF - CONSTRUCTION PROJECT** (96-D-111) provides line item funding for the Total Estimated Cost (TEC) of the project.

WEAPONS STOCKPILE STEWARDSHIP
INERTIAL CONFINEMENT FUSION -- FUNDING BY PROGRAM

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
OPERATING & MAINTENANCE (O&M)			
Indirect Drive w/Glass Laser Driver	98,175	104,514	103,408
National Ignition Facility	6,000	23,600	59,200
Direct Drive w/Glass Laser Driver	20,765	20,100	20,295
KrF Laser	9,620	8,500	8,156
Light Ion Beams	26,200	27,481	26,369
Capsule Fabrication and Development	14,425	15,823	15,184
Other	928	2,943	1,948
SUBTOTAL O&M	176,113	202,961	234,560
CONSTRUCTION (NIF)	0	37,400	131,900
TOTAL Inertial Confinement Fusion	**176,113**	**240,361**	**366,460**
Use of PY Balances	(3,300)	0	0
TOTAL NEW BA - INERTIAL CONFINEMENT FUSION	**172,813**	**240,361**	**366,460**

WEAPONS STOCKPILE STEWARDSHIP
INERTIAL CONFINEMENT FUSION -- FUNDING BY SITE

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Base Program			
Lawrence Livermore National Laboratory	81,345	86,756	86,368
Los Alamos National Laboratory	21,800	22,222	21,324
Sandia National Laboratories	26,200	27,481	26,369
Oakland Operations Office	760	1,562	914
Naval Research Laboratory	8,950	8,500	8,156
University of Rochester/Laboratory for Laser Energetics	20,765	20,100	20,295
General Atomic	10,245	11,359	10,900
Headquarters/Other	48	1,381	1,034
Total Base Program	**170,113**	**179,361**	**175,360**
National Ignition Facility (NIF)			
Lawrence Livermore National Laboratory	4,265	49,000	0
Los Alamos National Laboratory	200	300	0
Sandia National Laboratories	450	2,200	0
University of Rochester/Laboratory for Laser Energetics	135	175	0
Argonne National Laboratory	850	1,000	0
Nevada Test Site	100	0	0
Oakland Operations Office	0	8,325	0
Headquarters: NIF (96-D-111)	0	0	191,100
Total NIF	**6,000**	**61,000**	**191,100**
TOTAL Inertial Confinement Fusion	**176,113**	**240,361**	**366,460**
Use of PY Balances	(3,300)		
TOTAL NEW BA - INERTIAL CONFINEMENT FUSION	**172,813**	**240,361**	**366,460**

a/ Pending site selection, FY 1997 funding for NIF is reflected at Headquarters.

INDIRECT DRIVE WITH GLASS LASER These activities include computational and experimental efforts necessary to investigate the x-ray driven, indirect drive approach to ICF.

PROGRAM GOALS:

- Address physics issues involving ignition target designs, hohlraum-laser interactions, laser-plasma instabilities, hydrodynamic instabilities, high-power and high-energy glass laser technologies, and diagnostics.
- Gain a better understanding of issues related to ignition, including target physics and plasma physics, which will increase the level of confidence in achieving ignition and reduce the risk associated with the NIF.
- Provide the facilities and expertise necessary to conduct certain weapons related experiments.

CHANGE FROM FY 1996:

Funding reflects productivity savings from the Department's Strategic Alignment Initiative; however, the FY 1996 level of effort is essentially maintained.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
Conducted target physics experiments to investigate the areas of hydrodynamically equivalent physics (HEP) and hohlraum-laser interaction physics (HLP).	Pursue Beamlet experiments in support of glass laser technology development.	Continue target physics experimentation on Nova that includes the study of hydrodynamic mix and benchmarks the new 3D code.
Initiated use of new 3-dimensional (3D) ICF hydrodynamic computer code for modeling high energy and high density implosions.	Complete Nova Technical Contract target physics symmetry/hydrodynamic activities and plasma physics experiments.	Implement full 3D radiation/hydrodynamics modeling of Nova experiments.
Conducted experiments on Nova using gas-filled hohlraums to better understand issues of symmetry and laser-plasma instabilities relative to NIF design and operation.	Conduct ignition design optimization studies and weapons physics experiments on Nova. Identify robust ignition target designs.	Begin fast-ignitor experiments using a petawatt laser beam as a means of possibly achieving higher density plasmas.
Performed full design and sensitivity studies for ignition targets, including targets with carbon hydrogen (CH) and Beryllium (Be) ablators.	Continue 3D code development.	Optimize synthetic-pad polishing technology development for laser system component and transfer technology to optics vendors.
Demonstrated synthetic-pad polishing of optical components to the size and quality needed for NIF optics.	Conduct 100 terawatt (TW) hohlraum-laser experiments in warm plasmas as a prelude to fast-ignitor experiments.	Test, fill, and field demonstrate a Be capsule for OMEGA and NIF.
	Continue experiments on Nova to understand capsule irradiation symmetry in gas-filled hohlraums using plasma densities anticipated for megajoule laser systems.	

FUNDING LEVELS:

$98,175	$104,514	$103,408

NATIONAL IGNITION FACILITY (NIF) OTHER PROJECT COSTS: This category includes only the operations & maintenance (O&M) expenses for NIF for activities such as conceptual and advanced conceptual design, environmental documentation, vendor facilitization and pilot production, startup costs, operational readiness reviews, and technical support as reflected on the NIF Construction Project Data Sheet. These Other Project Costs (OPC) added to the Total Estimated Cost (TEC) equals the Total Project Cost (TPC) for the NIF.

PROGRAM GOALS:

- Ensure the necessary technologies, such as the optical components and potassium dihydrogen phosphate (KDP) crystals, meet criteria needed for successful completion of the NIF.
- Support risk reduction activities to ensure successful completion of the project.

CHANGE FROM FY 1996: The $35.6 million increase reflects manufacturing readiness and vendor facilitization activities for the full year on all of the major optical components needed for the NIF.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997
Received Secretarial approval of Key Decision One, Approval of New Start. Initiated the environmental analysis for NIF included in the Stockpile Stewardship and Management (SSM) Programmatic Environmental Impact Statement (PEIS). Four sites, LLNL, LANL, SNL, and the Nevada Test Site are being evaluated as potential sites for NIF. Issued the Notice of Intent in June, 1995, with public meetings held in various locations in June through August 1995. Developed updated Quality Assurance Plans, Project Execution Plan, and Title I Plan. Initiated non-site specific section of the Preliminary Safety Analysis Report. Initiated Advanced Conceptual Design. Selected an Architectural & Engineering contractor. Participated in public process to determine the non-proliferation impacts of the NIF.	Initiate startup/activation activities, including Operational Readiness Review Planning. Complete the NIF environmental analysis as part of the SSM PEIS and issue a Record of Decision (ROD); site selection will occur after the ROD is completed. Continue to develop detailed Quality Assurance Plans. Complete the Preliminary Safety Analysis Report initiated in FY 1995. Complete the Advanced Conceptual Design, including a detailed proposal to cost-effectively incorporate a direct drive option in NIF. Provide technical support and conduct manufacturing readiness activities for the project. Begin optics facilitization to develop and implement improvements at optics vendors to enable cost-effective production of NIF optical components. Completed the Dellums process and determined that NIF supports U.S. efforts on nonproliferation.	Provide industrial technical support for significant manufacturing readiness activities: - Begin KDP crystal facilitization. - Begin qualification of laser component vendors of critical items needed for construction and operation of NIF. - Begin optics pilot production: hire and train teams, begin small production run, modify equipment and processes. Continue startup/activation activities, including Operational Readiness Review Planning.

FUNDING LEVELS:

$6,000	$23,600	$59,200

DIRECT DRIVE WITH GLASS LASER: These activities address the direct drive approach to ICF which can potentially provide higher gain at a given driver energy.

PROGRAM GOALS:

- Develop an understanding of direct drive target physics to assess the performance of direct drive capsules on the NIF by
  - studying the effects of hydrodynamic instability and drive symmetry on ignition scaling through improvement of the illumination uniformity,
  - developing individual beam-smoothing techniques, and
  - understanding and improving power balance in multibeam laser systems.

CHANGE FROM FY 1996:

Funding reflects productivity savings from the Department's Strategic Alignment Initiative; however, the FY 1996 level of effort is essentially maintained.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995	FY 1996	FY 1997
Completed the 60-beam, 30 kJ OMEGA Upgrade Project. Received approval for Key Decision Four, Approval to Commence Operations. Began operations and experimental program.	Operate the upgraded OMEGA laser and conduct direct-drive implosions, planar hydrodynamics, and long-scale-length plasma physics experiments. Investigate OMEGA laser temporal pulse shaping. Characterize the OMEGA laser energy absorption fraction, x-ray conversion efficiency, and mass ablation rate. Support the design and development effort for NIF.	Begin experiments to demonstrate 1.6% RMS (root means square) single beam uniformity on OMEGA, addressing implosion symmetry and energy distribution issues. Perform long-scale-length plasma generation experiments to validate the high gain direct drive NIF target designs. Complete experimental and theoretical analysis necessary for fielding foam buffered direct drive experiments on OMEGA. Begin laser analysis and diagnostics design for power balance on OMEGA. Continue improvements of individual beam uniformity on OMEGA.

FUNDING LEVELS:

$20,765	$20,100	$20,295

KrF LASER: The Krypton fluoride (KrF) laser is a short wavelength laser technology with enhanced laser beam uniformity and efficiency.

PROGRAM GOALS:
- Evaluate the necessary and sufficient laser beam uniformity for direct drive laser fusion.
- Evaluate ablative hydrodynamic instabilities of accelerated flat foils for direct drive targets.
- Support the NIF project by addressing the principal instabilities affecting ignition target performance.
- Evaluate the viability of large KrF laser systems for high gain applications, such as future energy production.

CHANGE FROM FY 1996:
Funding reflects productivity savings from the Department's Strategic Alignment Initiative; however, the FY 1996 level of effort is essentially maintained.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995	FY 1996	FY 1997
Completed 56-beam, 4kJ direct drive NIKE laser facility and began operations. Demonstrated, through the use of an optical smoothing technique called Induced Spatial Incoherence (ISI), single beam nonuniformity of 1% RMS in a spatially flat topped beam with a beam tilt of <1%, an order of magnitude lower than existing ICF lasers.	Conduct planar direct drive Rayleigh-Taylor experiments to evaluate various target designs. Demonstrate long wavelength uniform acceleration using colliding flat foil targets. Demonstrate high contrast laser pulse shaping with up to 10 ns total pulse lengths to confirm beam uniformity. Accelerate thick CH targets and evaluate methods to minimize instability growth.	Evaluate the effective threshold for Raman, Brillouin, and two-plasmon instabilities with laser intensities and plasma sizes appropriate to a pellet for a megajoule system. Develop cryogenic deuterium-deuterium (DD) targets along with methods of diagnosing their surface quality. Demonstrate the acceleration of DD targets with adequate uniformity and low enough instability growth to support inertial fusion. Conduct experiments to study the interaction of 10-30 megabar shocks with various structured targets.

FUNDING LEVELS:

FY 1995	FY 1996	FY 1997
$9,620	$8,500	$8,156

LIGHT ION BEAMS: In the light-ion approach to ICF, electrical energy from a pulsed power accelerator is coupled to a magnetically insulated diode to create an intense beam of light ions that can be focused onto a target. Activities support the development of light ion beams as an alternative path for ICF experiments, focusing on two main areas: beam target interaction and beam generation. Support experiments for NIF and SPEAR are also carried out.

PROGRAM GOALS:

- Conduct experiments to address the physics of ion beam/matter interaction: the scaling of hohlraum temperature with power intensity, the effect of beam instabilities and the use of internal pulse shaping.
- Conduct imploding plasma experiments which support both the ICF and weapons programs.
- Develop technology for NIF and continue NIF physics support.
- Develop high-yield technology for applications to weapons effects, weapons physics, and energy production.

CHANGE FROM FY 1996: Funding reflects productivity savings from the Department's Strategic Alignment Initiative; however, the FY 1996 level of effort is essentially maintained.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995	FY 1996	FY 1997
Demonstrated ability to increase coupled ion power and decrease ion beam divergence through reduction of the unusable (and often unobserved) portion of the diode current. Achieved a 60 electron volts (eV) hohlraum radiation temperature by focusing an increased brightness lithium beam to an intensity greater than 5 terawatts per square centimeter. Established temperature scaling with power intensity through target experiments on PBFA II. Investigated internal pulse shaping for light ion beam targets. Completed a performance review of the light-ion program by the ICF Federal Advisory Committee which resulted in strong endorsement of the light ion beam program plan.	Demonstrate operation of the lithium ion extraction diode on PBFA II at 8 MV and 1 MA and quantify the beam divergence and efficiency. Initiate experiments with extracted beams at Sandia, NRL, and Cornell University to demonstrate self-pinched transport and solenoidal lens focusing. Begin technology development of power conditioning system, target chamber, first wall, and target positioner for future NIF application. Refine design of an internally-pulse-shaped ignition target for NIF. Develop advanced ion sources for improved uniformity and reduced divergence on SABRE and PBFA-X. Demonstrate the operation of the PBFA-X ion diode at 15 MV and 1 MA. Begin NIF laser pulse-hohlraum interaction experiments.	Generate a radiation temperature of 100 eV and a 10 ns pulse within a hohlraum driven by a z-pinch implosion. Generate an extracted non-protonic beam with beam quality sufficient for transport experiments. Begin planar target experiments with an extraction ion diode on PBFA II to diagnose ion beam/matter interaction physics. Perform fully integrated, two-dimensional deterministic radiative transfer, hydrodynamics calculations of ignition and high-yield (light-ion) target designs. Refine the internally-pulse-shaped concept for ion driven high yield targets and for alternative target designs, based on Nova and OMEGA Upgrade experiments. Demonstrate shock behavior in these targets utilizing x-rays generated in a z-pinch implosion. Continue NIF laser pulse-hohlraum interaction experiments.

FUNDING LEVELS:

$26,200	$27,481	$26,369

CAPSULE FABRICATION AND DEVELOPMENT: Activities include the development and manufacturing of various complex, well-characterized, indirect and direct drive targets and target components which meet stringent specifications. Various levels of effort are conducted at the five ICF laboratories (LLNL, LANL, SNL, UR/LLE, and NRL) and by the ICF target support contractor, General Atomic. An ICF target consists of a millimeter-scale, fuel-containing "capsule" which may be enclosed in a vacuum- or gas-filled radiation case called a "hohlraum", mounted with a low-mass fiber web, or mounted in a low density foam-filled hohlraum. Current ignition target designs require cryogenic fuel in the capsules. Technological challenges include: producing targets with cryogenic layers of sufficient smoothness and uniformity; maintaining targets at cryogenic temperature during transportation to target chamber center; and performing final alignment.

PROGRAM GOALS:

- Develop procedures and techniques to provide capsules with known perturbations for testing stability.
- Develop advanced fabrication and layering techniques needed to produce cryogenic targets.
- Develop methods and systems for the characterization, transport, and insertion of targets into the target chamber.

CHANGE FROM FY 1996: Funding reflects productivity savings from the Strategic Alignment Initiative and essentially maintains the FY 1996 level of effort for capsule fabrication and development efforts.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995	FY 1996	FY 1997
Fabricated and characterized approximately 900 sophisticated, specialized Nova targets; 1,100 Trident targets; 500 NIKE planar targets; 250 PBFA-II targets and components; and 600 OMEGA capsules. Developed techniques to provide capsules with known perturbations for testing stability and mix theory. Pursued joining and smoothing techniques for the fabrication of ignition type beryllium capsules. Constructed a prototype cryogenic fill system and began conceptual design of the cryogenic target insertion system for OMEGA. Continued development of cryogenic fuel layers with smooth surfaces for OMEGA and NIF.	Continue to develop, fabricate, and characterize targets (capsules and other components) for the experimental programs at the five ICF laboratories. Continue development of the cryogenic target transport, layering, characterization, and insertion systems for OMEGA. Develop advanced fabrication techniques needed for ignition targets, including the formation of cryogenic fuel layers and beryllium shell fabrication in support of NIF.	Continue to develop, fabricate, and characterize targets (capsules and other components) for the experimental programs at the five ICF laboratories. Demonstrate cryogenic layering technology which satisfies the requirements for cryogenic target production for NIF. Complete the cryogenic deuterium-tritium fill, layering and characterization systems for OMEGA and begin overall system assembly and integration. Continue development of cryogenic targets for OMEGA. Demonstrate fabrication technology and techniques for NIF plastic capsules.

FUNDING LEVELS:

$14,425	$15,823	$15,184

OTHER: This category includes activities which support the goals of the national ICF program, including independent technical reviews (such as the Inertial Confinement Fusion Advisory Committee), the National Laser Users Facility (NLUF), and contract support for technical assistance. Some funding is also distributed from DOE Headquarters to the five ICF laboratories and the target contractor to meet critical and high priority needs as they arise.

PROGRAM GOALS ONGOING ACTIVITIES:

- Provide support to high priority activities that contribute to the goals of the national ICF program
- Provide advice and guidance to the Assistant Secretary for Defense Programs in both technical and management aspects of the ICF program and the development of NIF
- Allow outside researchers to use the ICF facilities (such as the National Laser Users Facility (NLUF) program and the outside users effort on Nova)

CHANGE FROM FY 1996

Funding supports ongoing activities with a minimal amount to meet unanticipated high priority needs as they arise.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995	FY 1996	FY 1997
Support the independent technical reviews by the Inertial Confinement Fusion Advisory Committee Provide unique technical support to the ICF program	Support the final meeting of the Inertial Confinement Fusion Advisory Committee (Charter expired the end of 1995) Support the NLUF program on the upgraded Omega laser Initiate an independent advisory group to provide a technical review of the ICF program Support a one-time 3D radiation/hydrodynamic simulation code development activity at the University of Rochester's Laboratory for Laser Energetics	Support independent technical review of the ICF program by an independent advisory group Support the NLUF program and other outside user programs Provide unique technical support to the ICF program

FUNDING LEVELS:

$928	$2,943	$1,948

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Project 96-D-111, NATIONAL IGNITION FACILITY: By producing ignition and modest energy gain in ICF targets, NIF could provide weapon-related physics data needed for the computational simulations that underpin the Department's stockpile stewardship efforts. In addition, NIF can provide simulation capability to study nuclear weapon effects on strategic, tactical, and space assets; serve as a magnet program to retain and attract scientific and technical talent to Defense Programs to conduct leading-edge scientific research; and provide critical ignition data to enable the development of civilian inertial fusion energy.

PROGRAM GOALS:
- Provide information needed to make a decision on physical construction on NIF in mid-FY 1997.
- Design a neodymium laser system of 192 beams, with each beam optically independent.
- Demonstrate a production capability for laser optical components.
- Design a laser and target area facility capable of producing an output pulse with an energy of 1.8 million joules.

CHANGE FROM FY 1996: The increase in FY 1997 reflects the shift from non-site specific Title I/Preliminary Design to Title II/Final Detailed Design and pre-construction, site specific preparation activities. A decision to begin physical construction is scheduled for mid-FY 1997. Complete information is provided in the Construction Project Data Sheet located at the end of the narrative budget justification.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995: No construction funding was requested or appropriated.	FY 1996: Conduct non-site specific Title I/Preliminary Design, of lasers, target area, integrated computers and controls, optical assembly building and optical components, including engineering studies, preliminary drawings and preliminary cost estimates. Select architect/engineering contractor and construction management contractor. Select project site following the Record of Decision on the SSM PEIS.	FY 1997: Complete final work on Title I/Preliminary Design. Conduct Title II/Final Detailed Design, including final detailed drawings. Prepare long-lead procurement packages for laser building, target area building, beam diagnostic systems, and beam transport support structure. Begin site preparation activities prior to actual facility construction which could begin in the 1st quarter FY 1998.

FUNDING LEVELS:

$0	$37,400	$131,900

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship
Inertial Confinement Fusion

1. Title and location of project: National Ignition Facility (NIF) Site To Be Determined	2a. Project No.: 96-D-111 2b. Construction Funded

SIGNIFICANT CHANGES

- Engineering design work (i.e., advanced conceptual design) since completion of the Conceptual Design Report in FY 1994, as well as advances in inertial confinement fusion science and technology, have led to some modifications in the design of the NIF. The Title I design, scheduled for completion in the fall of 1996, will take these into consideration, as well as the design of an optics assembly and refurbishment capability that was previously considered an infrastructure requirement. The costs for these design efforts are being absorbed within the amount of funding provided in the FY 1996 appropriation.

- Site selection for the NIF will be part of the Record of Decision on the Stockpile Stewardship and Management Programmatic Environmental Impact Statement that is scheduled for late FY 1996. After site selection and upon completion of Title I, the total project costs will be reviewed and validated, including the site infrastructure costs previously footnoted.

- Conceptual design costs, beyond the original $12 million spent on the Conceptual Design Report in FY 1993 and FY 1994, are reflected in Item 11.a.2.b. for activities associated with the optics assembly and refurbishment and site infrastructure.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Weapons Stockpile Stewardship
Inertial Confinement Fusion

1. Title and Location of Project: National Ignition Facility (NIF)
Site To Be Determined

2a. Project No. 96-D-111
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 24 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $ 842,600
Total Project Cost (TPC) -- $1,073,600

4a. Date Physical Construction Starts: 3rd Qtr. FY 1997

4b. Date Construction Ends: 3rd Qtr. FY 2002

6. Current Cost Estimate:
TEC-- $ 842,600 a/
TPC-- $1,073,600

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation b/	Adjustments	Obligations	Costs
Previous	$ 0	$ 0	$ 0	
1996	37,400	0	37,400	$ 33,400
1997	131,900	0	131,900	49,500
1998	197,800	0	197,800	180,700
1999	198,800	0	198,800	233,800
2000	191,300	0	191,300	184,400
2001	75,400	0	75,400	113,300
2002	10,000	0	10,000	47,500

a/ Does not include site specific infrastructure costs.

b/ Funding requirements (BA) represent total estimated cost (TEC) of the project only. Activities included under other project costs (OPC) are explained in Item 12.a.2. and the corresponding operations and maintenance funding identified in Item 11.a.2. are essential to achieving the project scope and schedule.

1. Title and Location of Project: National Ignition Facility (NIF) Site To Be Determined (Continued)	2a. Project No. 96-D-111 2b. Construction Funded

8. Project Description, Justification and Scope

The Project provides for the design, procurement, and construction of the National Ignition Facility (NIF), an experimental inertial confinement fusion facility intended to achieve controlled thermonuclear fusion in the laboratory by imploding a small capsule containing a mixture of the hydrogen isotopes, deuterium, and tritium. If a decision is made to proceed with construction, the NIF will be constructed at a site determined by the Record of Decision in late summer of 1996 as a part of the Stockpile Stewardship and Management Programmatic Environmental Impact Statement (SSM PEIS). The DOE designated preferred site is the Lawrence Livermore National Laboratory (LLNL), Livermore, California.

The DOE is undertaking a site selection process to determine the DOE-DP host site for the NIF as part of the SSM PEIS. The current TEC includes the site, conventional and special facilities described below. The site infrastructure improvements to accommodate the NIF, such as warehousing, fire stations, cafeterias, and shops, are not included. Much of this infrastructure is expected to exist at an adequate capacity to accommodate the NIF operations at most of the proposed DOE-DP sites. Any additional estimated costs for the infrastructure required at any particular site will be provided later, following the site selection process.

The mission of the National Inertial Confinement Fusion (ICF) program is to achieve controlled thermonuclear fusion in the laboratory. This program supports the DOE mandate of maintaining nuclear weapons science expertise required for stewardship of the stockpile, testing of nuclear weapons effects, and the development of fusion power by providing a database for inertial fusion ignition. As a key element of its Stockpile Stewardship Program, the NIF is designed to achieve propagating fusion burn and modest (1-10) energy gain within 2-3 years of initial operation and to conduct high energy density experiments, both through fusion ignitions and through direct application of the high laser power. This mission was identified in the NIF Justification of Mission Need, which was endorsed by the Secretary of Energy. Identification of target ignition as the next important step in ICF development for both defense and non-defense applications is consistent with the earlier (1990) recommendation of DOE's Fusion Policy Advisory Committee, and the National Academy of Sciences Inertial Fusion Review Group. In 1995, the DOE's Inertial Confinement Fusion Advisory Committee affirmed the program's readiness for an ignition experiment. A review by the JASONs in 1996 affirmed the value of the NIF for stockpile stewardship.

The NIF project supports the DOE mandate to maintain nuclear weapons science expertise required for stewardship of the stockpile. After the United States announcement of a moratorium on underground nuclear test in 1992, the Department established the Stockpile Stewardship program to ensure the preservation of the core intellectual and technical competencies in nuclear weapons. In addition, as a means of reducing the danger posed by nuclear weapons proliferation, the President announced that the United States would pursue a true zero yield Comprehensive Test Ban Treaty (CTBT). One of the safeguards that defines the terms under which the U.S. would enter a CTBT is the conduct of the Stockpile Stewardship program to ensure the safety and reliability of the stockpile. The NIF is one of the most vital facilities in that program. The NIF will provide the capability to conduct laboratory experiments to address the high energy density and fusion aspects that are so important to both primaries and secondaries in stockpile weapons.

At present, the Nation's computational capabilities and scientific knowledge are inadequate to ascertain all of the performance and safety impacts from changes in the nuclear warhead physics packages due to aging, remanufacturing, or engineering and design alterations. Such changes are inevitable if the warheads in the stockpile are retained well into the next century, as expected. In the past, the impacts of such changes were evaluated through nuclear weapon tests. Without underground tests, we will require better, more accurate computational capabilities to assure the reliability and safety of the nuclear weapons stockpile for the indefinite future.

To achieve the required level of confidence in our predictive capability, it is essential that we have access to near-weapons conditions in laboratory experiments. The importance of nuclear weapons to our national security requires such confidence. For detonation of weapon primaries, that access is provided in part by hydrodynamic testing. For secondaries and for some aspects of primary performance, the NIF will be a principal laboratory experimental physics facility.

1. Title and Location of Project: National Ignition Facility (NIF) Site To Be Determined (Continued)	2a. Project No. 96-D-111 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

The most significant potential commercial application of ICF in the long term is the generation of electric power. Consistent with the recommendations of the Fusion Policy Advisory Committee, the NIF will provide a unique capability to address critical elements of the inertial fusion energy program by exploring moderate gain (1 to 10) target designs, establishing requirements for driver energy and target illumination for high gain targets, and developing materials and technologies useful for civilian inertial fusion power reactors.

The ignition of an inertial fusion capsule in the laboratory will produce extremely high temperatures and densities in matter. Thus, the NIF will also become a unique and valuable laboratory for experiments relevant to a number of areas of basic science and technology.

The NIF is an experimental fusion facility consisting of a laser and target area, and associated assembly and refurbishment capability. The laser will be capable of providing an output pulse with an energy of 1.8 megajoules (MJ) and an output pulse power of 500 terawatts (TW) at a wavelength of 0.35 micrometers (μm) and with specified symmetry, beam balance and pulse shape. The NIF design calls for an experimental facility to house a multibeam line, neodymium (Nd) glass laser capable of generating and delivering the pulses to a target chamber. In the target chamber, a positioner would center a target containing fusion fuel, a deuterium-tritium mixture, for each experiment. Diagnostics provided by this project would provide the test data to demonstrate subsystem performance and initial operations.

The NIF experimental facility, titled the Laser and Target Area Building, would provide an optically stable and clean environment. This laser building would be shielded for radiation confinement around the target chamber and will be designed as a nonnuclear, low -hazard facility capable of withstanding the natural phenomena specified for the host site. The baseline facility is for one target chamber, but the design shall not preclude future upgrade for additional target chambers.

The NIF project consists of conventional and special facilities. Special facilities include the Laser System, Target Area, Integrated Computer Control System, and Optics.

Site and Conventional Facilities include the land improvements (e.g., grading, roads) and utilities (electricity of 58,000 megawatt-hours per year, heating gas at 40,900,000 megajoules per year or equivalent, water at 25,600,000 liters per year). The laser building has an approximately 16,000 square meters footprint, and 25,000 square meters in total area. It is a reinforced concrete and structural steel building that provides the vibration-free, shielded, and clean space for the installation of the laser, target area, and integrated control system. The laser building consists of two laser bays, each 24 meters (m) by 130 m long, and a central target area--a heavily shielded (1.8 m thick concrete) cylinder 30 m in diameter and 29 m high. The laser building includes security systems, radioactive confinement and shielding, control rooms, supporting utilities, fire protection, monitoring, and decontamination and waste handling areas. An optics assembly and refurbishment capability is required regardless of site; therefore, the design of this functionality is added to the scope of the project.

Special Facilities:

- The laser system will be designed to generate and deliver high power optical pulses to the target chamber. The system consists of 192 laser beamlets configured to illuminate the target surface with a specified symmetry, uniformity, and temporal pulse shape. The laser pulse originates in the pulse generation system. This precisely formatted low energy pulse is amplified in the main amplifier. To minimize intensity fluctuation, each beam is passed through a pinhole in a spatial filter on each of the four passes through the amplifier and through a transport spatial filter. The beam transport directs each high power laser beam to an array of ports distributed around the target chamber where the frequency of the laser light is tripled to 0.35 μm, spatially modulated by phase plates and focused on the target. Systems are provided for automatic control of alignment and the measurement of the power and energy of the beam. Structural support and auxiliary systems provide the stable platform and utilities required.

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1. Title and Location of Project: National Ignition Facility (NIF) Site To Be Determined (Continued)	2a. Project No. 96-D-111 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

- The target area includes a 10 m diameter, low activation (i.e., activated from radiation) aluminum vacuum chamber located in the Target Area of the laser building. Within this chamber, the target will be precisely located. The chamber and building structure provide confinement of radioactivity (e.g., x-rays, neutrons, tritium, and activation products). Diagnostics will be arranged around the chamber to demonstrate subsystem performance for project acceptance (TEC) and initial operations (TPC). Structural, utility and other support systems necessary for safe operation and maintenance will also be provided in the Target Area. The target chamber and staging areas will be capable of conducting experiments with cryogenic targets. The Experimental Plan indicates that cryogenic target experiments for ignition will be needed 2-3 years after completion of the project. Therefore, the targets and this cryogenic capability will be supplied by the experiments. The NIF project will make mechanical and electrical provisions necessary to position and align the cryogenic targets within the chamber. The baseline is for indirectly driven targets. An option for directly driven targets will be considered in the design.

- The integrated computer control system includes the computer systems (note: no individual computer will cost over $100,000) required to control the laser and target systems. The system will provide the hardware and software necessary to support NIF operations. Also included is an integrated timing system for experimental control of laser and diagnostic operations. Safety interlocks and access control will also be provided.

- Thousands of optical components would be required for the 192 beamlet NIF. These components include laser glass lenses, mirrors, polarizers, deuterated potassium dihydrogen phosphate crystals, pulse generation optics, debris shields and windows, and the required optics coatings. Optics includes quality control equipment to receive, inspect, characterize, and refurbish the optical elements.

1. Title and Location of Project: National Ignition Facility (NIF) Site To Be Determined (Continued)	2a. Project No. 96-D-111 2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 153,600
1. Engineering, design and inspection at approximately 16.6 percent of construction costs (Item c)	$ 90,400	
2. Construction management at approximately 2.2 percent of construction costs (Item c)	12,100	
3. Project management at approximately 9.4 percent of construction costs (Item c)	51,100	
b. Land and land rights		0
c. Construction costs		544,400
1. Improvements to land	1,800	
2. Buildings modification	106,400	
3. Site-specific infrastructure	TBD c/	
4. Other Structures	0	
5. Utilities	6,300	
6. Special Facilities	429,900	
d. Standard equipment		700
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 698,700
i. Contingencies of approximately 20.6 percent of above costs		143,900
j. Total line item cost (Section 11.a.1.(a)		$ 842,600 d/
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 842,600

The cost estimate assumes a project organization and cost distribution consistent with the management requirements appropriate for a DOE Strategic System as outlined in the DOE Order 430.1, Life Cycle Asset Management and the NIF Project Execution Plan. Actual cost distribution will be in conformance with accounting guidelines in place at the time of project execution.

10. Method of Performance

Method of performance will vary slightly with the site selected by the DOE. However, the main approach will be that the NIF Laboratory Project Office (consisting of LLNL, LANL, SNL, and UR/LLE and supported by competitively-selected contracts with Architect Engineering firms, a Construction Manager, equipment and material vendors, and construction firms) will prepare the design, procure equipment and materials, and perform conventional construction, safety, system analysis, test, and operations. DOE will maintain oversight and coordination through the Headquarters Office of the National Ignition Facility and the field office. DOE will conduct the site selection and the NEPA determination. LLNL has been designated as the preferred site. The procurement and installation/test of special equipment will be performed by the NIF Laboratory Project Office. Inspection and Title III engineering contracts for the conventional systems will be competitively awarded. NIF start-up will be conducted by the NIF laboratory operations staff.

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c/ Site-specific infrastructure costs will be determined after site selection. (For the LLNL site, the infrastructure costs have been estimated by LLNL to be about $26 million.)

d/ Based on 100 percent conceptual design completion.

1. Title and Location of Project: National Ignition Facility (NIF)
Site To Be Determined (Continued)

2a. Project No. 96-D-111
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1996	FY 1997	FY 1998	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 33,400	$ 49,500	$ 180,700	$ 579,000	$ 842,600
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 0	$ 33,400	$ 49,500	$ 180,700	$ 579,000	$ 842,600
2. Other project costs						
(a) R&D necessary to complete construction	$ 0	$ 8,800	$ 43,900	$ 38 400	$ 17,400	$ 108,500
(b) Conceptual design costs	$ 12,000	250	150	0	0	12,400
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	2,100	1,200	500	600	1,200	5,600
(e) Other project related costs	4,100	7,950	4,650	4,800	83,000	104,500
(f) Total other project costs	$ 18,200	$ 18,200	$ 49,200	$ 43,800	$ 101,600	$ 231,000
(g) Total project cost	$ 18,200	$ 51,600	$ 98,700	$ 224,500	$ 680,600	$1,073,600
(h) LESS: Non-Federal contribution	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(i) Net Federal total project (TPC)	$ 18,200	$ 51,600	$ 98,700	$ 224,500	$ 680,600	$1,073,600
Note: BA requirements TEC e/	$ 0	$ 37,400	$ 131,900	$ 197,800	$ 475,500	$ 842,600
OPC f/	$ 18,200	$ 23,600	$ 59,200	$ 31,300	$ 98,700	$ 231,000

b. Related annual costs (estimated life of project--30 years)	
1. Facility operating costs	$ 22,200
2. Facility maintenance and repair costs	31,800
3. Programmatic operating expenses directly related to the facility	55,000 g/
4. Capital equipment not related to construction, but related to the programmatic effort in the facility	200
5. GPP or other construction related to programmatic effort in the facility	200
6. Utility costs	2,300
7. Other costs	4,000
Total related annual funding	$115,700

e/ Specific long-lead procurements and contracts (e.g., building construction; major laser, optics, and target area special equipment) require BA in advance of BO.

f/ Specific long-lead procurements and contracts (e.g., optics facilitization and pilot production) require BA in advance of BO.

g/ This primary experimental operating expense will be included in the base Inertial Confinement Fusion Program budget.

1. Title and Location of Project: National Ignition Facility (NIF) Site To Be Determined (Continued)	2a. Project No. 96-D-111 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project costs

1. Total facility costs
   (a) Line item -- Narrative not required.
   (b) PE&D -- None.
   (c) Operating expense funded equipment -- None.
   (d) Inventories -- None.

2. Other project costs
   (a) R&D necessary to complete construction -- Costs include optics vendor facilitization ($60,300), pilot production (e.g., optics components) ($20,900), component production prototyping ($6,900), target diagnostics ($12,500) not required to determine project subsystem performance for project acceptance, and pilot optics Quality Assurance ($7,900).
   (b) Conceptual design and engineering studies -- Includes the original conceptual design report completed in FY 1996 ($12,000) and the conceptual design activities for the optical assembly and refurbishment capability and site infrastructure ($400).
   (c) Decontamination and decommissioning (D&D) -- None.
   (d) NEPA documentation -- Preparation includes the NIF portion of the Stockpile Stewardship and Management Programmatic Environmental Impact Statement ($3,200), environmental monitoring and permits ($2,400).
   (e) Other project related costs -- Engineering studies (including advanced conceptual design) of project options ($6,950); assurances, safety analysis, and integration ($13,150); start-up planning, management, training, and staffing ($10,400); procedure preparation ($4,200); operating spares ($12,800); costs incurred during construction, installation, component and systems test and checkout prior to Operational Readiness Review (ORR), electricity ($5,600), start-up ($35,300), argon, nitrogen, and building maintenance ($14,100); and ORR ($2,000).

b. Related annual costs

1. Facility operating costs -- Includes operator labor, engineering support and materials for upgrades and modifications, and consumables for operation of special equipment.
2. Facility maintenance and repair costs -- Includes cost of labor, engineering support, and consumables for special equipment maintenance and refurbishment, including optics. Also includes maintenance for the laser building and support buildings.
3. The current NOVA experimental program, including LLNL, LANL, SNL, and General Atomics, is approximately $37,000. Based on use of complex cryogenic targets, increased diagnostics support, and higher levels of three dimensional physics modeling, the direct NIF experimental program costs are estimated at $55,000. Additional program costs will be associated with use of the facility.
4. Fabrication accounts, procurements, such as small lasers and some laser parts, Computer-Aided Design systems, etc. to support upgrades.
5. Minor additions and modifications to the facility related to programmatic effort.
6. Electricity only. Gas, sewer, water, etc. are paid out of overhead included in labor rate tables.
7. Nitrogen and argon for laser and transport beam tubes, stock inventory, and procurement support.

WEAPONS STOCKPILE STEWARDSHIP
TECHNOLOGY TRANSFER AND EDUCATION

NOTE: Summary level funding information is included in the Weapons Stockpile Stewardship overview

TECHNOLOGY TRANSFER: Technology Transfer operations and maintenance supports cooperative activities between the nuclear weapons complex and the private sector which provide dual benefits to the nuclear weapons program and U.S. industry. The majority of the activities are partnerships called Cooperative Research and Development Agreements (CRADAs) which have been selected on the basis of their contribution to the advanced technology needs of the weapons complex, principally at the nuclear weapons laboratories and the weapons production plants at Oak Ridge and Kansas City. These technology partnerships are strongly supportive of two new Defense Programs Initiatives - the Accelerated Strategic Computing Initiative (ASCI) and the Advanced Design and Production Technologies Initiative (ADAPT) - and other Core Weapons Research and Development objectives.

PROGRAM GOALS:

- Support the goals and initiatives of the Stockpile Stewardship and Management programs, particularly in the areas of advanced computing and manufacturing.
- Advance a broad range of critical weapons core competencies and programs.
- Continue industry partnerships, leveraging the vast resources of the private sector to cost share the development of the best, most efficient and most affordable technologies needed to meet the objectives of the Stockpile Stewardship and Management programs.
- Support the Small Business Initiative, providing technology assistance and partnership agreements for businesses of less than 500 employees.

ONGOING RESPONSIBILITIES:

Funds will be distributed to the laboratories and weapons production facilities in accordance with their approved plans for completion of existing cooperative research and development projects. The reduced funding will be applied to the projects deemed by the facility to be the most important to its mission-related competencies. The primary emphasis will be on those which support advanced computing and advanced manufacturing. In addition, the Small Business Initiative will be continued at a reduced level.

CHANGE FROM FY 1996: The FY 1997 funding level, a reduction of $99.6 million from FY 1996, reflects the accelerated transition which was initiated in FY 1995, and will primarily support agreements related to the ASCI and ADAPT Initiatives.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995	FY 1996	FY 1997
Plan for the transition of the technology transfer program to support key stockpile stewardship initiatives. Supported the laboratory/facility partnerships and major partnerships with high value to the Stockpile Stewardship and Management programs and significant U.S. economic impact. Results include: - National Storage Laboratory: Produced high performance storage software that will be used by ASCI to meet its extremely challenging archival storage requirements. - Nuclear Well Logging: Included radiation transport modeling which added 3D physics and visualization to Monte Carlo Neutron Transport codes at Los Alamos which will be part of the ASCI portfolio of applications codes. - Neural networks/Process control: developed and deployed to adaptive control system for a major chemical manufacturer which will also fulfill critical ADAPT requirements for advanced process control. - Mesh Generation Consortium: implemented advanced 3D analytical models to be used in commercial and ADAPT engineering software. - Technologies Enabling Agile Manufacturing (TEAM) program: completed and demonstrated a number of software modules for computer aided manufacturing and inspection process automation. Supported the Small Business and National Tool Initiatives.	Continue the transition to direct support of fundamental stockpile stewardship needs. Continue the highest priority, previously approved projects, thus honoring commitments with industry and permitting the laboratories to complete planned R&D objectives. Terminate the lowest priority (bottom 10-15%) projects. Reduce scope and funding of remaining projects (approximately 50% of projects) to ensure funding for highest priorities while providing some support to commitments made to industrial partners and key competency areas of the laboratories. Continue to support the Small Business and National Machine Tool Initiatives but at reduced levels.	Complete the transition of the technology transfer program to support the Stockpile Stewardship and Management objectives, particularly advanced computing and advanced manufacturing. Support the Small Business Initiative at reduced levels.

FUNDING LEVELS:

$213,554	$149,000	$49,400

EDUCATION: The Education program supported by Stockpile Stewardship provides funding for math and science educational programs through the Albuquerque, Oakland, and Nevada Operations Offices to the Lawrence Livermore National Laboratory, Los Alamos National Laboratory, and Sandia National Laboratories. These programs allow use of the unique resources of the Department of Energy national laboratories -- people, programs, and facilities -- to improve science and math education throughout the Nation. Enhancing the scientific education of our citizens will ensure a highly trained, diverse scientific workforce for the laboratories and will ultimately enhance our ability to conduct the Stockpile Stewardship mission. The projects supported by the laboratories may be ongoing in nature or may be for a defined period, and are grouped in six major categories: teacher/faculty enhancement, curriculum improvement, institutional improvement, student support, educational technology and public understanding of science. The laboratories annually submit a proposed list of projects to Defense Programs Headquarters for approval. Each laboratory publishes an annual report depicting the science education projects conducted and their accomplishments. Of the total budget each year, approximately 15 percent is provided through the laboratories to enhance math and science education at Historically Black Colleges and Universities and other minority institutions.

PROGRAM GOALS:

- Contribute to systemic improvement in science, mathematics, engineering and technology education.

- Ensure a highly trained, diverse workforce.

- Enhance scientific and technical literacy.

CHANGES FROM FY 1996:

With a 50 percent reduction in the science education program from FY 1995 to FY 1996, all projects and funding status were evaluated and the science education program reprioritized in order to support the projects with direct bearing on the mission of Defense Programs. This refocusing process will be completed in FY 1997. The program will continue at the same level of effort in FY 1997; however, emphasis will be placed on graduate and post-graduate activities that have a direct tie to the Defense Programs' mission and goals and the core competencies of the laboratories.

Weapons Stockpile Stewardship
Technology Transfer & Education
Education (Continued)

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
Conducted a total of 100 math, science and engineering education programs for teacher and student participants at all educational levels. Supported initiatives for Historically Black Colleges and Universities/Minority Institutions to increase the participation of historically underrepresented groups in scientific and technical fields. Examples of successful projects included: - the 1994-95 New Mexico High School Supercomputing Challenge; - a project to help schools implement new technologies into the educational process; - a collaboration with the New Mexico State Systemic Initiative in Math and Science. - development of a curriculum guide for conducting scientific research projects in K-12 classrooms; - a national program to encourage junior and senior high school girls to develop and maintain an interest in science and scientific careers; - a CD ROM containing images from the deep space Clementine satellite and corresponding lesson material; - a program to develop accredited technical degree programs for underrepresented groups which resulted in 41 graduates in FY 1995.	Emphasize programs for high school, undergraduate and graduate level participants with a priority on programs that have a direct connection to the core competencies of the laboratory. Emphasize collaborative research projects to leverage available resources in areas such as advanced computing. Develop a curriculum module on radiation and risk assessment using laboratory experts in conjunction with local master teachers.	Ensure a well-balanced mix of projects which are tied directly to the Department of Energy Defense Programs' mission and goals as well as the laboratories core competencies. Provide students and their teachers with opportunities to collaborate with Laboratory scientists as an outgrowth of the National Ignition Facility for Teachers and Youth (NIFTY) curriculum development effort. The Global Security high school curriculum developed by laboratory scientists in conjunction with master teachers will be disseminated nationwide. The curriculum will include advanced visualization tools for atmospheric modeling developed at the Atmospheric Release Advisory Center.

FUNDING LEVELS:

$20,000	$10,000	$10,000

WEAPONS STOCKPILE MANAGEMENT

PROGRAM MISSION

The Weapons Stockpile Management Program was established to provide for surety, reliability, maintenance, refurbishment as necessary, evaluation, dismantlement, transportation, and disposal of nuclear weapons in accordance with quality, quantity, and schedule requirements approved by the President in the Nuclear Weapons Stockpile Plan (NWSP), and to consolidate the nonnuclear weapons manufacturing activities as needed to develop and maintain key technologies necessary to support the enduring stockpile.

GOAL:
The goal of the program is to support the national security of the United States by maintaining a safe, reliable nuclear deterrent. The objectives related to the goal of the Weapon Stockpile Management Program are to:
- provide the capability to maintain, evaluate, repair, or replace weapons in the existing stockpile, dismantle retired weapons, as required, and upgrade enduring stockpile weapons with enhanced weapon safety, security, or use control features;
- assure the safety, security, and reliability of stockpiled weapons, and assure that weapons meet the specified military characteristics;
- dismantle excess nuclear weapons in accordance with national policy and international agreements, and provide safe, secure, and verifiable processing and storage or disposition of the resulting nuclear materials and components;
- continue an effective Radiological/Nuclear Accident Response Program by providing the capability to respond to nuclear accidents/incidents and other evolving nuclear terrorist threats;
- continue to reconfigure the infrastructure to meet the requirements for management of nuclear weapons manufacturing technology and safe/secure storage of strategic nuclear materials by making the infrastructure smaller, cost effective, responsive, flexible, agile, and environmentally responsible; and
- assure the availability of adequate supplies of tritium to meet the requirements of the enduring stockpile by continuing work on an assured source of Tritium.

During **FY 1995**, the following significant accomplishments were realized.

- reduced the backlog of retired weapons by dismantling 1,393 warheads.
- assured adequate level of testing for evaluation of all weapons in the enduring stockpile.
- issued a draft Programmatic Environmental Impact Statement for Tritium Supply and Recycling for public review and comment.
- maintained warheads through a robust surveillance program that detected deficiencies in the stockpile through destructive and nondestructive testing.
- maintained the nuclear weapons stockpile as depicted in the FY1996-2001 Nuclear Weapons Stockpile Plan, awaiting the President's signature, by supporting Limited Life Component Exchange (LLCE) schedules. Delivered LLCE "kits" to the Department of Defense to support the enduring stockpile.
- developed and implemented a training and certification program for Department of Energy Nuclear Explosive Safety Study Group members and reviewers.
- implemented Seamless Safety-21 at Pantex Plant using a graded approach for the W55 and W79, and full application for all other weapons starting with the B61.
- maintained stockpile surety, improved current assessment capabilities, improved surety processes and methodologies, and increased surety assessment effectiveness.
- supported the development of the pit rebuild capability program.
- activities to support the replacement of the B53 strategic bomb;
- activities to support the W87 Life Extension Program.

PROGRAM MISSION - STOCKPILE MANAGEMENT (Continued)

The Tritium Supply and Recycling Programmatic Environmental Impact Statement (PEIS) was completed in October 1995 and the formal Record of Decision supporting a dual-track strategy was announced on December 6, 1995. Over the next three years, the Department will pursue the two most promising tritium supply alternatives. One track will explore the purchase of an operating or partially complete commercial light-water reactor or the purchase of irradiation services from such a reactor. The second track will be to design, build, and test critical components of an accelerator system for production of tritium and prepare a design for the actual facility. The Department will select one of the alternatives at a later date to serve as the primary source of tritium for the nuclear weapons stockpile. The other alternative would be developed as a back-up source.

The FY 1996 and FY 1997 programs will continue ongoing activities required to manage the stockpile, such as adherence to the current Stockpile Plan, related dismantlement, and LLCE schedules. The following new initiatives are scheduled for **FY 1996**

- development and application of Acorn reservoir technology to the appropriate stockpiled weapons;
- upgrade of the B83-1 strategic bomb;
- dismantlement of approximately 1,100 warheads;
- issuance of the final Tritium Supply and Recycling PEIS in October 1995 and the Secretarial Record of Decision in December 1995;
- initiation of the dual-track strategy for a new, assured tritium source;
- selection of a prime engineering contractor to support the APT track of the dual-track tritium strategy;
- issuance of both the draft and final Stockpile Stewardship and Management PEIS and the Secretarial Record of Decision; and
- initiation of activities in support of the Enhanced Surveillance Program;
- initiation of the W76 Dual Revalidation Program.

In addition to continuing to support the activities initiated in FY 1996, initiatives for **FY 1997** are:

- begin full production of the Safeguards Transporter;
- fully fund the Defense Programs pension and sales tax liabilities at Mound and Pinellas;
- sponsor and participate in the DOE Lead Federal Agency Weapons Accident exercise;
- issue the LANL and Pantex Site-wide EISs;
- dismantle approximately 1,300 warheads;
- provide funding for one-half of the activities of the National Resource Center for Plutonium in Amarillo, Texas

Funding of $5 million is requested in FY 1997 to fund one-half of the activities of the National Resource Center for Plutonium (PRC) in Amarillo, Texas. PRC serves as a scientific and technical information resource on issues relating to the storage, disposition, potential utilization, and transportation of plutonium, high explosives, and other hazardous materials generated from weapons assembly and disassembly operations. PRC is available to respond to needs for information and interpretation of technical and scientific data raised by interested and concerned citizens, oversight agencies of Federal, State, and local governments, elected officials, and site-specific groups. PRC was established in FY 1995 and was fully funded by the Office of Fissile Materials Disposition in FY 1995 ($9 million) and FY 1996 ($10 million). The Office of Fissile Materials Disposition will also budget for $5 million in FY 1997 for the National Resource Center for Plutonium which will provide PRC a total of $10 million in FY 1997.

PERFORMANCE MEASURES:
Specific performance measures are included int he program element descriptions on the following pages. Significant overall measures for FY 1997 are:
-First Life Extension Program Underway
-Dismantle About 1,300-1,400 Weapons

PROGRAM MISSION - STOCKPILE MANAGEMENT (Continued)

-Full Implementation of Enhanced Surveillance Program
-Dual Track Strategy for Tritium

FACILITY OPERATIONS:

STOCKPILE MANAGEMENT SITES: Weapons Stockpile Management activities are conducted at four production facilities and three national laboratories. The production facilities include Allied Signal Aerospace - Kansas City Plant, Missouri; Mason & Hanger - Pantex Plant, Texas; Lockheed Martin Energy Systems, - Y-12 Plant, Tennessee; and Westinghouse Savannah River Company - Tritium Site, South Carolina. The national laboratories include Sandia National Laboratories and Los Alamos National Laboratory, New Mexico, and Lawrence Livermore National Laboratory, California. Other miscellaneous locations are funded through the Weapons Stockpile Management Program as noted on the funding by location table included in the Weapons Activities Executive Summary.

The nuclear weapons complex is expected to experience ongoing consolidation over the next 5 to 10 years. The goal of the consolidation effort is to design a complex that is smaller, more flexible, and much less expensive to operate. By the year 2001, nonnuclear manufacturing and processing capabilities will be consolidated at the Kansas City Plant, the Savannah River Site, the Los Alamos National Laboratory (LANL), and Sandia National Laboratories (SNL).

Three important Environmental Impact Statements (EIS) are currently underway within the Department that will assist in defining alternatives that will lead to a consolidated nuclear weapons complex in the twenty-first century: 1) a Stockpile Stewardship and Management PEIS to be completed July 1996; 2) a Pantex Site-wide Environmental Impact Statement (SWEIS) to be completed by November 1996; and 3) a LANL SWEIS to be completed by the summer of 1997.

CONCEPTUAL DESIGN REPORTS AND POST-CONCEPTUAL DESIGN ENGINEERING: During the budget request period, there are two Conceptual Design Reports (CDR) for new construction activities which will exceed $3 million. The Department is planning to initiate both of these CDR's in FY 1996 pending formal Congressional notification. The first will support the APT track of the dual-track strategy for a new tritium source. The estimated cost of the conceptual design effort is $74 million. The second conceptual design will support the Stockpile Stewardship and Management (SS&M) Programmatic Environmental Impact Statement. The Department is currently developing a preferred alternative which will identify capabilities and facilities for the SS&M programs and will determine a configuration for implementation of the SS&M programs. Conceptual design and other pre-title I activities are expected to be carried out in FY 1996 and FY 1997 at an estimated cost of approximately $12 million.

CAPITAL EQUIPMENT AND GENERAL PLANT PROJECTS: The merger of capital equipment and general plant projects funding with operating expense funding in FY 1996 will afford the plants and laboratories more flexibility in carrying out the Stockpile Management program.

FY 1997 BUDGET STRUCTURE:

Comparabilities:

Due to the realignment of some of the budget elements within Weapons Activities affecting the Stockpile Management Program, the FY 1997 budget is presented on a comparable basis versus the traditional method of non-comparable. This change provides the benefit of allowing the FY 1997 column of the budget narrative (program activities and resource requirements) to reference changes from FY 1996 on a comparable basis. Since the budget request format does not show funding in the structure where it was appropriated, Tables 1 and 2 provide crosswalk matrices for FY 1995 and FY 1996 to allow visibility into the development of comparabilities for these years.

The more significant changes that have occurred are:

1. Core Stockpile Management - All salaries, benefits and related costs, including support services contracts, for Federal employees have been transferred to the Weapons Activities

PROGRAM MISSION - STOCKPILE MANAGEMENT (Continued)

Program Direction decision unit. Due to this transfer, the Federal Support key activity has been renamed. The new name is Special Projects and Other which will include the activities and resources not transferred to Program Direction. Budget data and activity descriptions also reflect the transfer out of the Rocky Flats Plant surveillance activities to the Materials Surveillance Subprogram within Stockpile Management. Dose Reconstruction activities will be funded in FY 1997 and beyond by the Assistant Secretary for Environment, Safety and Health. Therefore, FY 1995 and FY 1996 are adjusted accordingly.

2. Materials Surveillance - All salaries, benefits and related costs, including support services contracts, for Federal employees have been transferred to the Weapons Activities Program Direction decision unit. Due to this transfer and the nature of activities transferred, the name of this Subprogram has been changed from Materials Surveillance and Technical Support to Materials Surveillance. Budget data and activity description also reflect the transfer in of the Rocky Flats Plant surveillance activities to the Materials Surveillance Subprogram within Stockpile Management.

Stockpile Management - Subprograms:

The Weapons Stockpile Management budget request is presented within five subprograms:

Core Stockpile Management: This program includes lifetime surety, maintenance, surveillance, evaluation, repair, and reliability of the enduring stockpile; weapons dismantlement and disposal; maintenance of a production capability; development and operation of safe, secure systems for transporting nuclear weapons and components; enhanced surveillance activities to extend capability to determine, in advance, what components are likely to fail; and operation of a complex that meets environment, safety, and health requirements.

Radiological/Nuclear Accident Response: This program ensures the maintenance of the Department's technical and operational capabilities for responding to radiological accidents/incidents or malevolent nuclear incidents worldwide. Radiological/Nuclear Accident Response assets include the Nuclear Emergency Search Team, Federal Radiological Monitoring and Assessment Center, Aerial Measuring System, Atmospheric Release Advisory Capability, Accident Response Group, Radiological Assistance Program, and Radiation Emergency Assistance Center/Training Site.

Reconfiguration: This program has been significantly downsized in scope since its inception. The focus for FY 1997 will be to continue consolidation of nonnuclear manufacturing efforts within the weapons complex, including the transfer of 25 technologies and processes and the requalification of these technologies and processes at various receiver sites.

Tritium Source: This program will support the implementation of the Secretarial Record of Decision on tritium production and recycle facilities to provide tritium for the Nation's enduring nuclear weapons stockpile.

Materials Surveillance: This program (formerly named Materials Surveillance and Technical Support) supports materials surveillance activities (safeguards and security) at former DP facilities (Rocky Flats, Hanford, Fernald, Savannah River, and Idaho National Engineering Laboratory) that have been transferred to Environmental Management.

Dose Reconstruction Activities will be funded in FY 1997 and beyond by the Assistant Secretary for Environment, Safety and Health.

FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Core Stockpile Management					
Operating Expense	$ 1,196,210	$ 1,546,510	$ (185,066) f/	$ 1,361,444 f/	$ 1,362,602
Capital Equipment	19,680	24,190		24,190	21,948
General Plant Projects	1,000	10,000		10,000	7,000
Operations & Maintenance	$ 1,216,890	$ 1,580,700	$ (185,066)	$ 1,395,634	$ 1,391,550
Construction Line Items	48,320	71,660		71,660	76,049
Subtotal, Core Stockpile Management	$ 1,265,210	$ 1,652,360	$ (185,066)	$ 1,467,294	$ 1,467,599
Radiological/Nuclear Accident Response					
Operating Expense	$ 60,954	$ 61,910	$ 0	$ 61,910	$ 68,800
Capital Equipment	8,100	8,100	0	8,100	7,000
General Plant Projects	0	0	0	0	0
Operations & Maintenance	$ 69,054	$ 70,010	$ 0	$ 70,010	$ 75,800
Construction Line Items	0	900	0	900	3,825
Subtotal, Rad/Nuclear Accident Response	$ 69,054	$ 70,910	$ 0	$ 70,910	$ 79,625
Reconfiguration					
Operating Expense	$ 94,271	$ 80,000	$ 0	$ 80,000	$ 25,000
Capital Equipment	0	0	0	0	0
General Plant Projects	0	0	0	0	0
Operations & Maintenance	$ 94,271	$ 80,000	$ 0	$ 80,000	$ 25,000
Construction Line Items	58,000	41,065	0	41,065	14,487
Subtotal, Reconfiguration	$ 152,271	$ 121,065	$ 0	$ 121,065	$ 39,487
Tritium Source					
Operating Expense	$ 0	$ 75,000	$ 0	$ 75,000	$ 100,000
Capital Equipment	0	0	0	0	0
General Plant Projects	0	0	0	0	0
Operations & Maintenance	$ 0	$ 75,000	$ 0	$ 75,000	$ 100,000
Construction Line Items	0	0	0	0	0
Subtotal, Tritium Source	$ 0	$ 75,000	$ 0	$ 75,000	$ 100,000

FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Materials Surveillance					
Operating Expense	$ 99,126	$ 104,748	$ 4,063	$ 108,811	$ 110,395
Capital Equipment	1,000	1,000	0	1,000	0
General Plant Projects	0	0	0	0	1,725
Operations & Maintenance	$ 100,126	$ 105,748	$ 4,063	$ 109,811	$ 112,120
Construction Line Items	340	0	0	0	0
Subtotal, Materials Surveillance	$ 100,466	$ 105,748	$ 4,063	$ 109,811	$ 112,120
Subtotal, Weapons Stockpile Management	$ 1,587,001	$ 2,025,083	$ (181,003)	$ 1,844,080	$ 1,798,831
Streamlining Savings	0	(18,900)	18,900	0	0
Subtotal, Weapons Stockpile Management	$ 1,587,001	$ 2,006,183	$ (162,103)	$ 1,844,080	$ 1,798,831
Adjustments	(52,392) a/	(124,078) b/g/	0	(124,078) g/	0
TOTAL, NEW OBLIGATIONAL AUTHORITY	$ 1,534,609 c/	$ 1,882,105	$ (162,103)	$ 1,720,002	$ 1,798,831
Summary					
Core Stockpile Management	$ 1,265,210 c/d/	$ 1,652,360	(185,066) f/	$ 1,467,294 c/d/f/	$ 1,467,599
Radiological/Nuclear Accident Response	69,054	70,910	0	70,910	79,625
Reconfiguration	152,271	121,065	0	121,065	39,487
Tritium Source	0	75,000	0	75,000	100,000
Materials Surveillance	100,466 d/	105,748	4,063	109,811 d/	112,120
Streamlining Savings	0	(18,900)	18,900	0	0
Adjustments	(52,392) a/	(124,078) b/g/	0	(124,078) g/	0
TOTAL, NEW OBLIGATIONAL AUTHORITY	$ 1,534,609	$ 1,882,105	$ (162,103)	$ 1,720,002	$ 1,798,831

a/ Use of prior year balances: $11,152,000 operating expense; $41,240,000 construction
b/ Use of prior year balances: $81,867,064 operating; $13,398,961 capital equipment; $28,811,585 construction
c/ Reflects FY 1995 rescission of $638,000; $614,000 core and $24,000 materials surveillance (P.L. 104-19)
d/ Reflects transfer of federal support funding to Weapons Program Direction, per Congressional direction. Details provided in comparability crosswalk.
e/ Reflects FY 1997 transfer of Dose Reconstruction activities to Office of Environment, Safety, & Health
f/ Includes Stockpile Management allocation of bottom line Contractor Streamlining Savings ($18,900,000)
g/ Includes Stockpile Management allocation of bottom line increased use of prior year balances ($71,686,000), per FY 1996 Appropriation.

Weapons Stockpile Management
Capital Equipment, General Plant Projects, & Construction Project Costs
Detail and Crosscut $ in Thousands

	Prior Years	Fiscal Year 1995	1996	1997	$ CHG	% CHG
OPERATIONS & MAINTENANCE						
Other (Line Item) Project Costs						
Conceptual Design Costs in Excess of $3 million						
97-D-122, Nuclear Materials Storage Fac. Renovation, LANL	$ 3,160	$ 0	$ 0	$ 0	$ 0	0%
Stockpile Management Restructuring Initiative--						
Pit Component Fabrication Capacity/ LANL	0	0	6,380	6,105	(275)	-5%
"Bridge" Costs in Excess of $3 million & Other OPC	0	0	0	0		
1/ OPC, not included above, for FY 1997 Requested Line Items	9,884			3,510	3,510	100%
Capital Equipment						
Capital Equipment - Core Stockpile Management						
Basic Capital Equipment		$ 19,680	$ 18,240	$ 12,948	(5,292)	-41%
Major Items of Equipment		0	0	0		
Automated Data Processing Equipment						
Mechanical CAD/CAM CAE Migration, KC			1,500			
Focused Factory Phase 5, KC			1,250			
Upgrade Unclassified GP System, KC			1,200			
FY96 Unclassified Computer Upgrade, PX			2,000			
EDMA System Upgrade No. 1, KC				1,600		
Central Data Repository Upgrade No. 1, KC				1,200		
MDMA Technology Upgrade No. 1, KC				1,500		
Unclassified IBM/MVS Data Center Consolidation, Y-12				2,700		
Shop Floor Extension No. 2, PX				2,000		
Capital Equipment - Accident Response		8,100	8,100	7,000	(1,100)	-16%
Capital Equipment - Materials Surveillance		1,000	1,000	0	(1,000)	0%
Subtotal, Capital Equipment		$ 28,780	$ 33,290	28,948	(4,342)	-15%
GPD-121 General Plant Projects, Various Locations		$ 1,000	$ 10,000	$ 7,000	$ (3,000)	-43%
GPD-146 General Plant Projects, Oak Ridge National Lab. & Y-12		0	0	1,725	1,725	100%
TOTAL, OPERATIONS & MAINTENANCE		29,780	43,290	41,183	(2,107)	-5%

TABLE I
FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT PROGRAM
COMPARABILITIES - FY 1995 CROSSWALK
$ in Thousands

	Adjusted FY 1995 Stockpile Management 1/	TRANSFERS			Total FY 1995 Stockpile Management
		Environment, Safety & Health	Program Direction	Materials Surveillance	
Core Stockpile Management					
Operations & Maintenance	1,386,757	(2,688)	(122,679)	(44,500)	1,216,890
Construction	48,660			(340)	48,320
Subtotal, Core	1,435,417	(2,688)	(122,679)	(44,840)	1,265,210
Use of prior year balances	(45,627)				(45,627)
Total, Core	1,389,790	(2,688)	(122,679)	(44,840)	1,219,583
Radiological/Nuclear Accident Response					
Operations & Maintenance	69,054	0	0	0	69,054
Construction	0				0
Subtotal, Accident Response	69,054	0	0	0	69,054
Use of prior year balances	0				0
Total, Accident Response	69,054	0	0	0	69,054
Reconfiguration					
Operations & Maintenance	94,271	0	0	0	94,271
Construction	58,000				58,000
Subtotal, Reconfiguration	152,271	0	0	0	152,271
Use of prior year balances	(6,765)				(6,765)
Total, Reconfiguration	145,506	0	0	0	145,506
Tritium Source					
Operations & Maintenance	0	0	0	0	0
Construction					0
Subtotal, Tritium	0	0	0	0	0
Use of prior year balances					0
Total, Tritium	0	0	0	0	0

TABLE I
FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT PROGRAM
COMPARABILITIES - FY 1995 CROSSWALK
$ in Thousands

	Adjusted FY 1995 Stockpile Management 1/	TRANSFERS			Total FY 1995 Stockpile Management
		Environment, Safety & Health	Program Direction	Materials Surveillance	
Materials Surveillance					
Operations & Maintenance	100,769 2/	0	(45,143)	44,500	100,126
Construction	0			340	340
Subtotal, Materials Surveillance	100,769	0	(45,143)	44,840	100,466
Use of prior year balances	0				0
Total, Materials Surveillance	100,769	0	(45,143)	44,840	100,466
Subtotal, Stockpile Management	1,757,511	(2,688)	(167,822)	0	1,587,001
Use of prior year balances	(52,392)	0	0	0	(52,392)
TOTAL, Stockpile Management	1,705,119	(2,688)	(167,822)	0	1,534,609

1/ This column represents the FY 1995 Adjusted Appropriation in the FY 1996 Budget Structure.
2/ This amount has been reduced by $1,765 for 17 FTEs transferred to Environmental Management.

TABLE 2
FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT PROGRAM
COMPARABILITIES - FY 1996 CROSSWALK
$ in Thousands

	Adjusted FY 1996 Stockpile Management	TRANSFERS			Total FY 1996 Stockpile Management
		Environment, Safety & Health	Program Direction	Materials Surveillance	
Core Stockpile Management					
Operations & Maintenance	1,561,800 1/	(2,888)	(117,278)	(46,000)	1,395,634
Construction	71,660				71,660
Subtotal, Core	1,633,460	(2,888)	(117,278)	(46,000)	1,467,294
Use of prior year balances	(115,278)				(115,278)
Total, Core	1,518,182	(2,888)	(117,278)	(46,000)	1,352,016
Radiological/Nuclear Accident Response					
Operations & Maintenance	70,010	0	0	0	70,010
Construction	900				900
Subtotal, Accident Response	70,910	0	0	0	70,910
Use of prior year balances					0
Total, Accident Response	70,910	0	0	0	70,910
Reconfiguration					
Operations & Maintenance	80,000	0	0	0	80,000
Construction	41,065				41,065
Subtotal, Reconfiguration	121,065	0	0	0	121,065
Use of prior year balances	(4,300)				(4,300)
Total, Reconfiguration	116,765	0	0	0	116,765
Tritium Source					
Operations & Maintenance	75,000	0	0	0	75,000
Construction	0				0
Subtotal, Tritium	75,000	0	0	0	75,000
Use of prior year balances	0				0
Total, Tritium	75,000	0	0	0	75,000

TABLE 2
FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT PROGRAM
COMPARABILITIES - FY 1996 CROSSWALK
$ in Thousands

	Adjusted FY 1996 Stockpile Management	TRANSFERS			Total FY 1996 Stockpile Management
		Environment, Safety & Health	Program Direction	Materials Surveillance	
Materials Surveillance					
Operations & Maintenance	105,748	0	(41,937)	46,000	109,811
Construction	0				0
Subtotal, Materials Surveillance	105,748	0	(41,937)	46,000	109,811
Use of prior year balances	(4,500)				(4,500)
Total, Materials Surveillance	101,248	0	(41,937)	46,000	105,311
Subtotal, Stockpile Management	2,006,183	(2,888)	(159,215)	0	1,844,080
Use of prior year balances	(124,078)	0	0	0	(124,078)
TOTAL, Stockpile Management	1,882,105	(2,888)	(159,215)	0	1,720,002

1/ This number reflects the allocation of the FY 1996 Contractor Streamling Savings of $18,900 to Core Stockpile Management.

FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT
PROGRAM FUNDING BY SITE
$ in Thousands

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Albuquerque Operations Office					
Kansas City Plant	$ 282,537	$ 315,344	$ (4,210)	$ 311,134	$ 274,700
Los Alamos National Lab	127,932	192,866	(2,300)	190,566	220,492
Mound Plant	0	0		0	0
Pantex Plant	252,425	285,330	(4,210)	281,120	264,959
Pinellas Plant	4,595	6,680		6,680	18,267
Sandia National Labs	198,543	207,078	(2,680)	204,398	189,220
Albuquerque Operations Office	73,966	217,068	(98,089)	118,979	137,037
Rocky Flats Operations Office	51,590	46,000		46,000	48,000
Oak Ridge Operations Office	360,358	424,365	(15,140)	409,225	388,147
Chicago Operations Office	20,919	2,120		2,120	3,456
Savannah River Operations Office	123,701	155,450	(2,065)	153,385	102,620
Oakland Operations Office	30,770	35,366		35,366	44,969
Ohio Field Office	6,955	5,120		5,120	22,533
Nevada Operations Office	30,545	33,545		33,545	34,175
Richland Operations Office	21,631	26,384		26,384	23,899
Idaho Operations Office	9,034	12,538		12,538	11,420
Other/Headquarters	(8,500)	59,829	(52,309)	7,520	14,937
Subtotal	$ 1,587,001	$ 2,025,083	$ (181,003)	$ 1,844,080	$ 1,798,831
Streamlining Savings	0	(18,900)	18,900	0	0
Subtotal	$ 1,587,001	$ 2,006,183	$ (162,103)	$ 1,844,080	$ 1,798,831
Adjustment	(52,392)	(124,078)	0	(124,078)	0
TOTAL, STOCKPILE MANAGEMENT	$ 1,534,609	$ 1,882,105	$ (162,103)	$ 1,720,002	$ 1,798,831

The Core Stockpile Management operating program includes procurement of materials (exclusive of nuclear materials); fabrication and assembly of nuclear weapons and weapon components, lifetime surety, maintenance and reliability assessments of the enduring stockpile, weapon dismantlement and disposal, maintenance of a production capability, development and operation of safe, secure systems for transporting nuclear weapons and weapon components, preparation, issuance, and maintenance of field training manuals, and facility startup and standby operations.

PROGRAM GOALS:
- Fully support the warhead dismantlement/disposal and storage program
- Increase support for retrofit programs for the B61, W76, B83, W87, and B53 replacement
- Support the limited life component exchange program
- Provide quality evaluations, special testing, and surveillance of nuclear weapon systems
- Acquire a pit rebuild capability program
- Maintain essential technologies and capabilities for which there is no current workload scheduled
- Initiate the Enhanced Surveillance Program
- Maintain the weapons complex infrastructure at a level necessary to accomplish mission requirements
- Initiate the W76 dual revalidation program

CHANGE FROM FY 1996:
Overall the FY 1997 program funding for Core Stockpile Management is level with FY 1996. However, it is noted there is increased funding (1) (+$29.0 million) for the pension and sales tax liabilities at the Mound and Pinellas Plants, (2) (+$10.0 million) for the new Safeguards Transporter production activities, and (3) (+$21.1 million) for the Enhanced Surveillance Program. These increases are offset by the FY 1996 Congressional nonrecurring increase of $81million in this program element for maintaining infrastructure and capabilities.

MEASURABLE PERFORMANCE ACTIVITIES (Summary of Program Category Pages):

FY 1995:	FY 1996:	FY 1997:
- Fully supported all directive schedules - Initiated B53 Replacement program actvities - Supported W87 Life Extension Programs activities - Supported development of the pit rebuild capability program - Developed draft Enhanced Surveillance Plan - Supported development of the Safeguards Transporter (SGT) - Implemented Seamless Safety-21 at Pantex	- Fully support all directive schedules - Support development, preproduction and prototyping of the new Safeguards Transporter (SGT) - Initiate production activities to support the B53 Replacement Program - Continue support of the W87 Life Extension Program - Upgrade the B83-1 strategic bomb - Develop/apply Acorn technology to stockpiled weapons - Partial funding of the DP pension and sales tax liabilities at Mound and Pinellas plants ($10M) - Initiate the Enhanced Surveillance Program (ESP) - Initiate the W76 dual revalidation program	- Fully support all directive schedules. - Support the production of the new Safeguards Transporter (SGT) - Continue activities to support the Enhanced Surveillance Program - Fund DP pension and sales tax liabilities at Mound and Pinellas plants ($39M) - Issue the LANL and Pantex Site-wide EIS - Continue production activities to support the B53 Replacement and W87 Life Extension programs - Continue the W76 dual revalidation program

Core Stockpile Management - Direct Mission and Infrastructure Programs Summary

	FY 1996 (Continued) - Core Stockpile Management - Continue support for the B61, W76, and B83 retrofit programs	FY 1997 (Continued) - Core Stockpile Management - Continue the development/application of Acorn technology to stockpiled weapons - Continue support for the upgrade of the B83-1 bomb

FUNDING LEVELS:

$1,265,210	$1,467,294	$1,467,599

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FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT
CORE STOCKPILE MANAGEMENT
$ in Thousands

II. Funding Schedule:

Program Activity	Adjusted FY 1995	Adjusted FY 1996	FY 1997	$ Change	% Change
Direct Missions Program:					
Weapons Maintenance And Support					
Weapons Program	$ 181,550	$ 209,950	$ 212,660	$ 2,710	1%
Enhanced Surveillance	0	18,872	40,000	21,128	112%
Production Capability Assurance Program (PCAP)	43,850	40,500	39,000	(1,500)	-4%
Materials Recycle and Recovery	37,480	40,090	40,260	170	0%
Production Support	251,600	307,020	257,040	(49,980)	-16%
Transportation Safeguards	47,170	59,305	65,289	5,984	10%
Subtotal, Direct Mission Programs	$ 561,650	$ 675,737	$ 654,249	$ (21,488)	-3%
Infrastructure Programs:					
Environment, Safety, and Health	$ 25,570	$ 24,280	$ 22,360	$ (1,920)	-8%
Waste Management	5,870	5,540	7,670	2,130	38%
Health and Safety	79,160	84,820	87,800	2,980	4%
Subtotal	$ 110,600	$ 114,640	$ 117,830	$ 3,190	3%
Safeguards and Security	$ 86,010	$ 89,560	$ 93,630	$ 4,070	5%
Utilities, Plant Engineering, and Maintenance					
Site Planning and Project Management	$ 38,040	$ 32,640	$ 32,110	$ (530)	-2%
Utilities	52,410	56,380	55,350	(1,030)	-2%
Maintenance	124,050	123,160	121,260	(1,900)	-2%
Subtotal	$ 214,500	$ 212,180	$ 208,720	$ (3,460)	-2%
Management and Administration	$ 213,210	$ 235,790	$ 260,000	$ 24,210	10%
Other Costs					
Special Projects and Other	10,240	33,537	28,173	(5,364)	-16%
Subtotal, Infrastructure Programs	$ 634,560	$ 685,707	$ 708,353	$ 22,646	3%
Total Operating Expense	$ 1,196,210	$ 1,361,444	$ 1,362,602	$ 1,158	0%

FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT
CORE STOCKPILE MANAGEMENT
$ in Thousands

II. Funding Schedule:

Program Activity	Adjusted FY 1995	Adjusted FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 19,680	$ 24,190	$ 21,948	$ (2,242)	-9%
General Plant Projects	1,000	10,000	7,000	(3,000)	-30%
Total Operations & Maintenance	$ 1,216,890	$ 1,395,634	$ 1,391,550	$ (4,084)	-0%
Construction	$ 48,320	$ 71,660	$ 76,049	$ 4,389	6%
Subtotal, Core Stockpile Management	$ 1,265,210	$ 1,467,294	$ 1,467,599	$ 305	0%
Streamlining Savings	0	0	0	0	0%
Total, Core Stockpile Management	$ 1,265,210	$ 1,467,294	$ 1,467,599	$ 305	0%

WEAPONS PROGRAM: The Weapons Program includes the direct activities necessary to meet all directive schedules for Stockpile Maintenance, Stockpile Evaluation, and Dismantlement. Stockpile Maintenance efforts include limited life component exchange, maintenance, and retrofit activities on various weapon systems in the enduring stockpile. Stockpile Evaluation activities include new material laboratory tests, new material flight tests, stockpile laboratory tests, stockpile flight tests, quality evaluations, special testing, and surveillance of weapon systems. Dismantlement includes all activities for weapons associated with retirement, disassembly, component characterization, and disposal and reclamation of materials and components, the engineering, development, testing, certification, procurement, and refurbishment of containers required for interim storage, and the staging and storage of weapons, components, and materials awaiting dismantlement.

CHANGE FROM FY 1996:
FY 1997 overall program increase is due to inflation and requirements to support the W87 Life Extension Program, increased stockpile evaluation activities at Pantex, and the acquistion of the pit rebuild capability program at LANL. A decrease in the dismantlement program will occur in FY 1997 due to planned facility safety and security upgrades at Pantex and because of the reduced weapon system types remaining in the dismantlement backlog.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Stockpile Maintenance activities: $65.8M - All directive schedules are fully supported; major efforts include the B61 ALT 335 and ALT 339, B83 ALT 750, W76 ALT 317 - Stockpile maintenance and limited life component (LLC) exchange activities - Initiated B53 Replacement and continued support of the W87 Life Extension Program activities - Upgraded the B83 strategic bomb - Stockpile Evaluation activities: $58.7M - Supported all directive schedules for stockpile evaluation activities - Supported activities to develop and demonstrate technologies/capabilities of a pit rebuild program at LANL	- Stockpile Maintenance activities: $82.5M - All directive schedules are fully supported; major efforts include the B61 ALT 335 and ALT 339, B83 ALT 750, W76 ALT 317 - Stockpile maintenance and limited life component (LLC) exchange activities - Continue B53 Replacement and W87 Life Extension Program activities - Continue to upgrade the B83 strategic bomb - Stockpile Evaluation activities: $61.1M - Supports all directive schedules for stockpile evaluation activities - Continue to support the pit rebuild technology/capability program at LANL - Initiate reservoir testing at Savannah River - Inititate the W76 dual revalidation program	- Stockpile Maintenance activities: $83.5M - All directive schedules are fully supported; major efforts include the B61 ALT 335 and ALT 339, B83 ALT 750, W76 ALT 317 - Stockpile maintenance and limited life component (LLC) exchange activities - Continue B53 Replacement and W87 Life Extension Program activities - Continue to upgrade the B83 strategic bomb - Stockpile Evaluation activities: $68.1M - Support all directive schedules for stockpile evaluation activities - Continue to support the pit rebuild technology/capability program at LANL - Continue the W76 dual revalidation program

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FY 1995 Continued - Weapons Program	FY 1996 Continued - Weapons Program	FY 1997 Continued - Weapons Program
- Dismantlement activities: $57.1M - Dismantled 1,393 warheads at Pantex - Continued support for the development, testing, certification, procurement, and refurbishing of containers (including AT-400A) - Continued support for staging and storage of weapons, components, and materials awaiting dismantlement	- Dismantlement activities: $66.4M - Dismantlement of approximately 1,100 warheads at Pantex - Continue support for the development, testing, certification, procurement, and refurbishing of containers (including AT-400A) - Continue support for staging and storage of weapons, components, and materials awaiting dismantlement - Disassembly of canned subassemblies (CSAs) at the Y-12 Plant	- Dismantlement activities: $61.1M - Dismantlement of approximately 1,300 warheads at Pantex - Continue support for the development, testing, certification, procurement, and refurbishing of containers (including AT-400A) - Continue support for staging and storage of weapons, components, and materials awaiting dismantlement - Continue disassembly of canned subassemblies (CSAs) at theY-12 Plant

FUNDING LEVELS:

$181,550	$209,950	$212,660

ENHANCED SURVEILLANCE: The enduring, aging nuclear weapons stockpile will be smaller, less diverse and more vulnerable to single-point and common-mode failures. Therefore, new surveillance technologies, coupled with enhanced capabilities to predict the effects of materials aging on components and weapons performance are needed. The enhanced surveillance program (new initiative) will add to the current stockpile evaluation program predictive capabilities. Enhanced surveillance techniques will extend capabilities to determine, in advance, what components are liable to fail (and an estimate of when in their service life) and will support the establishment of a proactive stockpile life extension program. The basic goal of enhanced surveillance is to anticipate defects that might occur in the enduring stockpile due to aging or for any other reason, such as environmental exposure, to develop enhanced means to assess safety and reliability impacts and ensure that stockpile problems are corrected before they reduce safety or reliability. This program will draw from and build upon activities currently existing across the spectrum of Defense Programs research and development, testing (non-nuclear), and current stockpile evaluation/surveillance activities and will develop new predictive models, techniques for data analysis, and may eventually lead to instrumentation to monitor warheads in situ, real-time, non-destructively.

A draft Enhanced Surveillance Program Plan was prepared in May 1995 and has been updated based upon final congressional action for FY 1996 and recommendations submitted by the steering group. Enhanced Surveillance funding will support a joint laboratory and plant program in the second half of FY 1996..

CHANGE FROM FY 1996:

The increase in FY 1997 funding will allow planned objectives (even with the delayed start in FY 1996) for FY 1996 and FY 1997 to be accomplished. The total program funding level for FY 1996 is planned at $28,860 which includes $18,872 new budget authority and $9,988 in prior year uncosted balances. The funding for both years is shared by the weapons plants and the laboratories.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
	- Program new start - Chartered steering committee and established management structure - Initiated feasibility studies for advanced diagnostics of materials and components - Developed priority list for component/subsystem aging models - Conducted laboratory test of existing stockpile components /materials to develop a materials aging model as an analytical design tool for future weapon performance prediction - Developed non-destructive test capability to bridge the destructive lab test to a non-destructive evaluation	- Develop methods to be used in fabricating diagnostic prototypes - Complete initial set of material models and begin experiments for validation - Begin development of age aware firing system and surety system models - Complete micro-structure assessments of high explosives in the stockpile - Define initial integrated sensor package for in-situ monitoring - Establish an enhanced flight test program to improve confidence in nuclear package delivery and flight performance

FUNDING LEVELS:

$0	$18,872	$40,000

PRODUCTION CAPABILITY ASSURANCE PROGRAM: This program maintains long-term competence in key manufacturing technologies and processes which are needed to ensure the viability of the enduring stockpile., This includes rebuilding enduring stockpile components, and the development and demonstration of components, subassemblies, and assemblies which could be used to upgrade the safety, security, and reliability of the enduring stockpile. Program activities are focused on maintaining a viable nuclear capability in the absence of explicit Department of Defense requirements for the production or retrofit of nuclear weapons. This program supports development activities to facilitate standardization, implementation of modern principles in design and manufacturing, process improvements and materials capabilities to improve the baseline production and surveillance processes.This program also supports technology development activities to eliminate or minimize waste generation and workplace hazards resulting from performance of assigned mission.

CHANGE FROM FY 1996:
FY 1997 program decreased from its FY 1996 level of activity. This decrease is due to the funding of key processes by the W87 Life Extension and B53 Replacement programs as well as ongoing activity to redefine the appropriate technologies and processes necessary to support the enduring stockpile within the fiscal resources available.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:

- Maintained competency in key technologies, manufacturing processes and plant operations:
  - high power detonator development
  - pit support and tube loading at LANL
  - development for W76 ACORN, Terrazzo reclamation, and Kyle reservoir loading at SR
  - enriched uranium recycling
  - depleted uranium and uranium alloys casting, and plating/coating processes
- Maintained development and product interrelationships among the DOE design laboratories and the production plants
- Provided pollution and hazard prevention alternatives to open detonation and open burning of high explosives, and disposal of energetic components from dismantlements
	- Maintain competency in key technologies, manufacturing processes and plant operations:
	  - high power detonator development
	  - pit support and tube loading at LANL
	  - development for W76 ACORN, Terrazzo reclamation, and Kyle reservoir loading at SR
	  - enriched uranium recycling
	  - depleted uranium and uranium alloys casting, and plating/coating processes
	- Maintain a development and product interrelationships among the DOE design laboratories and the production plants
	- Provide pollution and hazard prevention alternatives to open detonation and open burning of high explosives, and disposal of energetic components from dismantlements
		- Maintain competency in key technologies, manufacturing processes and plant operations:
		  - high power detonator development
		  - pit support and tube loading at LANL
		  - development for W76 ACORN, Terrazzo reclamation, and Kyle reservoir loading at SR
		  - enriched uranium recycling
		- Maintain a development and product interrelationships among the DOE design laboratories and the production plants
		- Provide pollution and hazard prevention alternatives to open detonation and open burning of high explosives, and disposal of energetic components from dismantlements

FUNDING LEVELS:

$43,850	$40,500	$39,000

MATERIALS RECYCLE AND RECOVERY: This program includes activities associated with recycle and recovery of plutonium, enriched uranium, and tritium from fabrication and assembly operations, limited life components, and dismantlement of weapons and components. It also involves the process in recycling and purifying the above materials to meet specifications for safe, secure, and environmentally acceptable storage. In addition, this program includes effort for plutonium and uranium related to the development and implementation of new processes or improvements to existing processes for fabrication and recovery operations, and for material stabilization, conversion, and storage. These activities are largely conducted at the Los Alamos, Savannah River, and Y-12 sites.

CHANGE FROM FY 1996:
FY 1997 program activity is level with FY 1996.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Supported tritium extraction operations of Savannah River targets - Met directive schedule for tritium reservoir refills - Updated criticality safety analysis, operating procedures, and implemented conduct of operations procedures - Completed plutonium analysis and prioritization of items for processing and stabilization at LANL - Initiated repackaging of canned plutonium metal oxide to new storage standards	- Support tritium extraction operations of Savannah River targets - Meet directive schedule for tritium reservoir refills - Continue safety analysis update requirement, conduct of operations, training to qualify and certify chemical operators to support resumption activities - Maintain base necessary for viable operation of TA-55 nuclear facilities - Continue plutonium stabilization activities - Expand nuclear processing technology base	- Complete tritium extraction operations of remaining Savannah River targets - Meet directive schedule for tritium reservoir refills - Restart and operate chemical recovery processes at the Y-12 Plant - Continue conduct of operations and training for chemical operators - Maintain base necessary for viable operation of TA-55 nuclear facilities - Continue plutonium stabilization activities - Expand nuclear processing technology base

FUNDING LEVELS:

$37,480	$40,090	$40,260

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PRODUCTION SUPPORT: Production Support activities include quality and production supervision and control, SNL quality assurance activities, production and process engineering, facility startup and standby, and field engineering. Supports the Stockpile Maintenance, Evaluation, Dismantlement, Materials Recycle and Recovery, and Production Capability Assurance Programs.

CHANGE FROM FY 1996:
FY 1997 program decrease is due primarily to (1) the FY 1996 Congressional nonrecurring increase of approximately $56 million in this program element for maintaining infrastructure and capabilities, and (2) a reduced level of support for resumption activities at the Y-12 Plant and a reduced level of tritium activities at the Savannah River site.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Supported the B61 Mod and ALT, W76 ALT, B83 Mod and ALT, W87 ALT life extension programs - Supported ACORN product line development activities - Support joint test assembly program - Supported the design and development of the AT-400A pit storage container - Supported the Replacement Tritium Facility at the Savannah River Site - Supported development of uranium technologies at LANL - Supported production engineering and MDE activities for the stockpile and reconfiguration programs at SNL - Supported the development prototyping capabilities for production of neutron generators, neutron tubes, thermal batteries and prototyping process characterization - Supported the design/development of the new Safeguards Transporter (SGT) - Support Y-12 Plant resumption activities	- Support the B61 Mod and ALT, W76 ALT, B83 Mod and ALT, W87 ALT life extension programs - Continue support of ACORN product line activities and mechanical assemblies technology for W87 - Support joint test assembly program - Support the Tritium Facilities at the Savannah River Site and other tritium activities - Support development of uranium technologies at LANL - Support production engineering and MDE activities for the stockpile and reconfiguration programs at SNL - Support the development, protyping capabilities for production of neutron generators, neutron tubes, thermal batteries and prototyping process characterization - Develop technologies to produce a complete physics package at LANL - Cease production support activities for the Oxnard facility - Support initial procurement of AT-400A container - Support Y-12 Plant's resumption activities	- Support the B61 Mod and ALT, W76 ALT, B83 Mod and ALT, W87 ALT life extension programs - Continue support of ACORN product line activities and mechanical assemblies technology for W87 - Support joint test assembly program - Support the Tritium Facilities at the Savannah River Site - Support development of uranium technologies at LANL - Support production engineering and MDE activities for the stockpile and reconfiguration programs at SNL - Support the development, protyping capabilities for production of neutron generators, neutron tubes, thermal batteries and prototyping process characterization - Develop technologies to produce a complete physics package at LANL - Qualify new, unscheduled transferred technologies at Kansas City Plant - Continue AT-400A procurements - Continue to support Y-12 Plant's Resumption activities

FUNDING LEVELS:

$251,600	$307,020	$257,040

TRANSPORTATION SAFEGUARDS: The mission of the Transportation Safeguards Program is to provide safe, secure movement of nuclear weapons, strategic quantities of Special Nuclear Material, nuclear test devices, selected non-nuclear weapon components, and limited life components to and from military locations and between nuclear complex facilities within the continental United States. This program element does not include the cost for the couriers and other administrative personnel (Federal Employees) who execute this program. These costs include salaries and benefits, travel, and training, and have been transferred to the Weapons Activities Program Direction decision unit.

CHANGE FROM FY 1996:
FY 1997 program increase is due to higher funding ($10M) for the production of the Safeguards Transporter (SGT).

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Supported development of the new Safeguards Transporter (SGT) - Supported the level of weapon deliveries and stockpile modifications specified in the current Production and Planning Directive - Supported an operational vehicle and communications maintenance program for the fleet including refurbishment of trailers, escort vehicles and tractors - Supported the Sapphire project - Supported Base closure weapons movement - Funding for salaries, benefits, travel and training of couriers for this program is now provided from the Weapons Activities Program Direction Decision Unit.	- Supports development and provides funding for preproduction and prototyping of the new Safeguards Transporter (SGT) - ($3M) - Supports the level of weapon deliveries and stockpile modifications specified in the current Production and Planning Directive - Provides operational fleet vehicles and communications systems through repair and refurbishment, and modifications to enhance safety and security - Continues support of Base closure weapons movement - Funding for salaries, benefits, travel and training of couriers for this program is now provided from the Weapons Activities Program Direction Decision Unit.	- Continues incremental funding for production of 17 new Safeguards Transporters (SGT) - ($13M) - Supports the level of weapon deliveries and stockpile modifications specified in the current Production and Planning Directive - Maintenance of an aggressive vehicle maintenance program for 58 SSTs and a satisfactory communications system - Continues support of Base closure weapons movement - Funding for salaries, benefits, travel and training of couriers for this program is now provided from the Weapons Activities Program Direction Decision Unit.

FUNDING LEVELS:

$47,170	$59,305	$65,289

ENVIRONMENT, SAFETY, AND HEALTH PROGRAMS: The Environment Program consists of implementing and maintaining a base program to support compliance with environmental laws, such as federal, state and local laws, and DOE Orders. The Waste Management Program maintains compliance with related federal, state, and local laws, and DOE Orders, and includes waste management activities at the weapons facilities not specifically provided for in the Environmental Restoration/Waste Management Five Year Plan. The Safety and Health Program supports activities directed to the protection of the safety and health of the public and employees, as required by federal, state, regional and local law or regulation, Executive Orders, and DOE Orders. Infrastructure program activities are basically ongoing year to year and usually do not have new significant initiatives. Detailed below are continuing measurable performance activities.

CHANGE FROM FY 1996:
Overall there is a small increase in this program. However, (1) the FY 1997 Environment Program reflects a reduction due to decreased support for the site-wide Environmental Impact Statement at Pantex and reduced costs at the Savannah River Site Tritium Division, (2) the FY 1997 Waste Management Program reflects an increase due to higher costs at Pantex driven by reduced Environmental Management (EM) funds provided to the site, implementation and support of a recycling program at the Kansas City Plant, and resumption activities at Y-12, and (3) the FY 1997 Safety and Health also reflects an increase due to additional safety engineers at the Y-12 Site in support of the enriched uranium activities, and for increased outside contracts at the Pantex Plant for fire protection engineering and fire hazards analysis.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:

- Environment Program: $25.6M
  - Protected air and water quality by complying with the Clean Air, Clean Water, and the Safe Drinking Water Acts
  - Controlled solid and hazardous waste generation
  - Controlled toxic substances by complying with CERCLA, RCRA, etc.
  - Supported a site-wide Environmental Impact Statement (EIS) at the Pantex Plant
- Waste Management Program: $5.9M
  - Characterized, certified, and packaged waste
  - Moved and disposed of sanitary waste
  - Provided technical support for processing waste generated by weapons activities
  - Support for a high volume of waste generation at the Pinellas Plant due to safe shutdown activities
	- Environment Program: $24.3M
	  - Protect air and water quality by complying with the Clean Air, Clean Water, and the Safe Drinking Water Acts
	  - Control of solid and hazardous waste generation
	  - Control toxic substances by complying with CERCLA, RCRA, etc.
	  - Supported site-wide EIS at the Pantex Plant
	  - Reduce program activities due to reductions at the Savannah River Site (SRS) Tritium Division and elimination of Stockpile Management funding at Pinellas Plant
	- Waste Management Program: $5.5M
	  - Characterize, certify, and package waste
	  - Move and dispose of sanitary waste
		- Environment Program: $22.4M
		  - Protect air and water quality by complying with the Clean Air, Clean Water, and the Safe Drinking Water Acts
		  - Control of solid and hazardous waste generation
		  - Control of toxic substances by complying with CERCLA, RCRA, etc.
		  - Reduce support of the site-wide EIS at the Pantex Plant
		  - Reduce program activities due to reductions at SRS Tritium Division
		  - Support a site-wide EIS at the Y-12 Plant
		- Waste Management Program: $7.7M
		  - Characterize, certify, and package waste
		  - Move and dispose of sanitary waste

FY 1995 Continued - ES&H	FY 1996 Continued - ES&H	FY 1997 Continued - ES&H

- Safety and Health Program: $79.2M
  - Provided emergency preparedness activities at the sites
  - Provided fire protection at the sites
  - Maintained industrial hygiene, industrial safety, occupational medical services, radiological protection programs
  - Provided nuclear safety and transportation support function
	- Provide technical support for processing waste generated by weapons activities
	- Safety and Health Program: $84.8M
	  - Provide emergency preparedness activities at the sites
	  - Provide fire protection at the sites
	  - Maintain industrial hygiene, industrial safety, occupational medical services, radiological protection programs
	  - Provide nuclear safety and transportation support function
	  - Increase criticality safety/radiation protection activities at Y-12 for resumption of operations
		- Provide technical support for processing waste generated by weapons activities
		- Implement recycling program at the Kansas City Plant
		- Safety and Health Program: $87.8M
		  - Provide emergency preparedness activities at the sites
		  - Provide fire protection at the sites
		  - Maintain industrial hygiene, industrial safety, occupational medical services, radiological protection programs
		  - Provide nuclear safety and transportation support function
		  - Continue criticality safety/radiation protection activities at Y-12 for resumption of operations

FUNDING LEVELS:

$110,600	$114,640	$117,830

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SAFEGUARDS AND SECURITY: The main purposes of the Safeguards and Security Program are to assure protection of all classified material, vital facilities, government property and plant personnel, provide and operate the protective force program, and administer the Nuclear Material Control and Accountability Program. Infrastructure program activities are basically ongoing year to year and usually do not have new significant initiatives. However, some programs and other related security and safeguards activities (information security, operational security, personnel security, computer security, etc.) will need to be updated to assure they serve the changing DP mission. Detailed below are continuing measurable performance activities.

CHANGE FROM FY 1996:
FY 1997 program increase is driven largely by inflation but also reflects increased effort to support DOE field sites declassification initiative activities.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Maintained and operated a protective force program - Developed site security plans and procedures - Provided adequate level of security education for employees - Administered the Personnel Security Assistance Program - Designed, operated, and supported site physical security systems - Administered technical surveillance countermeasures and TEMPEST programs - Supported DOE declassification initiative - Ensured accountability of Special Nuclear Material and other nuclear material	- Maintain and operate a protective force program - Develop site security plans and procedures - Provide adequate level of security education for employees - Administer the Personnel Security Assistance Program - Design, operate, and support site physical security systems - Administer technical surveillance countermeasures and TEMPEST programs - Support DOE declassification and "common badge" initiatives - Ensure accountability of Special Nuclear Material and other nuclear material - Support review of new DP initiatives to assure appropriate safeguards and security is considered in design and implementation	- Maintain and operate a protective force program - Develop site security plans and procedures - Provide adequate level of security education for employees - Administer the Personnel Security Assistance Program - Design, operate, and support site physical security systems - Administer technical surveillance countermeasures and TEMPEST programs - Support DOE declassification and "common badge" initiatives - Ensure accountability of Special Nuclear Material and other nuclear material - Continue support of review of new DP initiatives to assure appropriate safeguards and security is considered in design and implementation

FUNDING LEVELS:

$86,010	$89,560	$93,630

SITE PLANNING, UTILITIES, and MAINTENANCE: The Site Planning Program provides space management and facility planning with focus on DOE's initiative consolidation and downsizing of the weapons complex, administers the energy management program in support of energy conservation, and provides support for facility engineering services. The Maintenance Program provides preventive, corrective, and emergency maintenance of facilities and associated equipment. The Utilities Program supports the procurement of utility services, the facility operation, and maintenance for utility consumption at all sites. Infrastructure program activities are basically ongoing year to year and usually do not have new significant initiatives. Detailed below are continuing measurable performance activities.

CHANGE FROM FY 1996:
FY 1997 overall increase in these programs is driven by higher activity in the Maintenance and the Site Planning Programs for activities associated with facilities downsizing and consolidation.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Site Planning: $38.0M - Administer the energy management program to meet the DOE goal of 10% reduction of energy consumption in FY 1995 - Prepare Conceptual Design Reports, construction project data sheets, and cost estimates - Develop design criteria for general project planning, tracking, reporting, and management - Support planning for consolidation and downsizing of the weapons complex - Perform plant engineering services - Maintenance: $124.1M - Provided corrective and preventative maintenance services - Implemented new computerized work control system at 3 sites - Provided support for downsizing efforts	- Site Planning: $32.6M - Administer the energy management program to meet the DOE goal of 30% reduction of energy consumption by FY 2005 - Prepare Conceptual Design Reports, construction project data sheets, and cost estimates - Develop design criteria for general project planning, tracking, reporting, and management - Support planning for consolidation and downsizing of the weapons complex - Perform plant engineering services - Maintenance: $123.2M - Provide corrective and preventative maintenance services - Provide support for downsizing efforts - Begin effort to minimize on-site materials needed for maintenance - Incorporate more predictive maintenance techniques in day-to-day operations	- Site Planning: $32.1M - Administer the energy management program to meet the DOE goal of 30% reduction of energy consumption by FY 2005 - Prepare Conceptual Design Reports, construction project data sheets, and cost estimates - Develop design criteria for general project planning, tracking, reporting, and management - Accelerate planning and transition for consolidation and downsizing of the weapons complex - Perform plant engineering services - Maintenance: $121.3M - Provide corrective and preventative maintenance services - Provide support for downsizing efforts - Continue effort to minimize on-site materials needed for maintenance - Continue to incorporate more predictive maintenance techniques in day-to-day operations

FY 1995 Continued - Site Planning, Utilities, & Maintenance	FY 1996 Continued - Site Planning, Utilities, & Maintenance	FY 1997 Continued - Site Planning, Utilities, & Maintenance
- Utilities: $52.4M - Procured utility services at all sites - Managed utility operation and resources associated with utility consumption - Maintained full compliance with all Federal, state, and local laws, regulations, policies, and permits	- Utilities: $56.4M - Procure utility services at all sites - Manage utility operation and resources associated with utility consumption - Maintain full compliance with all Federal, state, and local laws, regulations, policies, and permits - Prepare to implement and provide support for improved utility master planning activities	- Utilities: $55.3M - Procure utility services at all sites - Manage utility operation and resources associated with utility consumption - Maintain full compliance with all Federal, state, and local laws, regulations, policies, and permits - Prepare to implement and provide support for improved utility master planning activities

FUNDING LEVELS:

$214,500	$212,180	$208,720

MANAGEMENT AND ADMINISTRATION: The Management and Administration Program provides for those activities associated with general management and administrative functions which include: information outreach, information services, taxes, human resources, chief financial officer, procurement, legal support, logistic support, administrative support, quality assurance, management fees, executive direction, and laboratory directed research and development. Infrastructure program activities are basically ongoing year to year and usually do not have new significant initiatives. Detailed below are continuing measurable performance activities and one new initiative in FY 1997. This new initiative will provide one-half ($5 million) of the funding requirement for the National Resource Center for Plutonium (PRC) in Amarillo, Texas. The Office of Fissile Material Disposition will budget the other half ($5 million) for PRC activities in FY 1997. PRC has a total budget of $10 million in FY 1997.

CHANGE FROM FY 1996:

FY 1997 program increase is driven by the funding of the pension plans/sales tax liability at Mound and Pinellas and higher institutional allocations at the Los Alamos National Laboratory and the Sandia National Laboratories. Defense Programs has the responsibility to fully fund the pension funds and sales taxes liabilities (total of $49,000) at the Mound and Pinellas Plants through FY 1995. These two plants were transferred to the Office of Environmental Restoration and Waste Management who became the sites landlord beginning in FY 1996. The new initiative of funding one-half of the National Resource Center for Plutonium activities will be handled within available funds.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995 :	FY 1996:	FY 1997:
- Maintained appropriate program in human resources - Maintained a public relations, information outreach program - Provided computer services, telecommunications, general purchasing and transportation services - Provided financial services (including taxes) - Maintained training program to assure employees are adequately trained - Supported legal staff, site management, operational surety and quality programs, and award fees - Provided support to the Laboratory Directed R&D activities	- Maintain an appropriate program in human resources - Maintain a public relations, information outreach program - Provide computer services, telecommunications, general purchasing and transportation services - Provide financial services (including taxes) - Maintain a training program to assure employees are adequately trained - Support legal staff, site management, operational surety and quality programs, and award fees - Provide support to the Laboratory Directed R&D activities - Provide initial payment on DP pension fund liability at Mound and Pinellas-$10M	- Maintain an appropriate program in human resources - Maintain a public relations, information outreach program - Provide computer services, telecommunications, general purchasing and transportation services - Provide financial services (including taxes) - Maintain a training program to assure employees are adequately trained - Support legal staff, site management, operational surety and quality programs, and award fees - Provide support to the Laboratory Directed R&D activities - Fully fund DP pension fund/sales tax liability at Mound and Pinellas-$39M - Provide one-half of the funding ($5 million) for the National Resource Center for Plutonium in Amarillo, Texas in the Pantex site budget

FUNDING LEVELS:

$213,210	$235,790	$260,000

Special Projects and Other: Includes funding for the Albuquerque, Oak Ridge, and Savannah River Operations Offices and to Headquarters for the conduct of special projects, one-time efforts or complex-wide efforts that do not fit easily into other budget categories and for which special control or visibility is required. Items at the Albuquerque Operations Office include support for Ross Aviation which supports the Safe, Secure Transport Program; radiation effects research; support for environmental impact statements, and other complex-wide efforts. Funding at the Oak Ridge Operations Office provides contractual support for resumption activities at the Y-12 Plant. Funding at the Savannah River Operations Office includes support for Safeguards and Security Costs for the Tritium area at the Savannah River Site and for other activities that provide direct programmatic support.

CHANGE FROM FY 1996:

FY 1997 program decrease for the Special Projects and Other Program is driven by the reduced requirement for technical contractual services in support of resumption activities for the Y-12 Plant. This is a new program element in FY 1997 which represents the programmatic activities that were included in the former Federal Support Program element. All Federal employee salaries and benefits and other related costs previously budgeted under Federal Support have been transferred to the Weapons Activities Program Direction decision unit.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Supported various special projects including direct programmatic technical contractual support at the Albuquerque Operations Office. Funding for Ross Aviation was provided from prior year obligations. ($3,565) - Provided technical contractual support of Y-12 resumption activities at the Oak Ridge Operations Office. ($3,750) - Supported the contract with Wackenhut Services, Inc. to provide safeguards and security for the Tritium area at the Savannah River Site. Supported other direct programmatic contractual support. ($2,925)	- Supported various special projects including direct programmatic technical contractual support (EISs, container safety, radiation effects, weapons/components shipping, etc.) at the Albuquerque Operations Office. ($22,308) - Provided technical contractual support of Y-12 resumption activities at the Oak Ridge Operations Office. ($3,200) - Supported the contract with Wackenhut Services, Inc. to provide safeguards and security for the Tritium area at the Savannah River Site. Supported other direct programmatic contractual support. ($3,935) - Supported special projects including a Uranium Vulnerability Assessment at the Y-12 Plant to be managed by the Office of Environment, Safety and Health. ($4,094).	- Supports various special projects including direct programmatic technical support contracts (EISs, container/packing safety, radiation effects, weapons/components shipping, etc.) at the Albuquerque Operations Office. ($19,434) - Provides technical support contracts in support of Y-12 resumption activities at the Oak Ridge Operations Office. ($800) - Supports the contract with Wackenhut Services, Inc. to provide safeguards and security for the Tritium area at the Savannah River Site. Supported other direct programmatic technical support contracts. ($3,945) - Supports various special projects (assessments, analyses, field support/reviews, etc.) at headquarters. ($3,994)

FUNDING LEVELS:

$10,240	$33,537	$28,173

CAPITAL EQUIPMENT is required by the four production plants and three weapons laboratories to maintain the capabilities necessary for stockpile maintenance, stockpile evaluation, and dismantlement activities.

CHANGE FROM FY 1996:
Level funding from FY 1996 supports the additional purchase of computer equipment and the expanded stockpile support activities of the national laboratories.

FUNDING LEVELS:

FY 1995	FY 1996	FY 1997
$19,680	$24,190	$21,948

GENERAL PLANT PROJECTS provide funding for low cost construction projects (less than $2 million) required to maintain the infrastructure and ongoing Stockpile Management programs of the four production plants and the three weapons laboratories.

FUNDING LEVELS:

FY 1995	FY 1996	FY 1997
$1,000	$10,000	$7,000

CONSTRUCTION LINE ITEMS:

CHANGE FROM FY 1996:
There are two new ES&H projects and three new programmatic projects included in the FY 1997 request. The ES&H projects are **97-D-124, Steam Plant Wastewater Treatment Facility, Y-12** (TEC:$3.6 million), which provides improvements to the existing process and operation of the treatment facility and is required to meet wastewater discharge limits of the National Pollutant Discharge Elimination System permit; and **97-D-123, Structural Upgrades, KC** (TEC:$18.0 million) will correct structural overstress caused by gravity loads which pose a failure hazard, and reinforce masonry walls to resist seismic loading.

The programmatic projects include **97-D-122, Nuclear Materials Storage Facility (NMSF) Renovation, LANL,** (TEC:$45.3 million), which provides the necessary renovations to an existing facility that was never operational. The facility will include a multi-level storage vault designed and constructed for long- and intermediate-term storage of large quantities of special nuclear materials. The NMSF location is most advantageous to move vault holdings and still keep them close enough to continue ongoing plutonium process missions; **97-D-121, Consolidated Pit Packaging System (CPPS), PX** (TEC:$7.31 million), which provides the modifications to four bays of the existing Special Nuclear Material Component Staging Facility to accommodate the installation of the CPPS for the hermetically sealed AT-400A container. Pantex has received the mission assignment for installing a pit packaging process. The CPPS will provide an automated plutonium pit shipping and storage container repackaging system to meet International Atomic Energy Agency and Department of Transportation requirements for fissile material transportation containers; and **88-D-122, Facilities Capability Assurance Program, Subproject 97-42, Hydraulic Press, Y-12** (TEC: $14.0 million), will procure and install a new 3,500 ton press required to support Defense Programs consolidation by completion of the equipment requirements for the depleted Uranium and Uranium alloy capabilities. This project will ensure the requirement to maintain nuclear competence and fully realize annual operating cost reductions. It supports expected enhancements in worker health and safety by reducing potential exposure to airborne radioactive material and elimination of point of operation risks.

The FY 1997 funding for New Start Projects will support the Titles I and II engineering design and associated integration activities for these projects.

FUNDING LEVELS:

FY 1995	FY 1996	FY 1997
$ 48,320	$ 71,660	$ 76,049

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WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Stockpile Management

1. Title and Location of Project: Consolidated Pit Packaging System (CPPS) AT-400A
Pantex Plant, Amarillo, Texas

2a. Project No. 97-D-121
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1997

3b. A-E Work (Titles I & II) Duration: 8 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 4th Qtr. FY 1997

4b. Date Construction Ends: 3rd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $ 7,310
TPC -- $20,550

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1997	$ 870	$ 0	$ 870	$ 820
1998	6,440	0	6,440	6,490

8. Project Description, Justification and Scope

The Department of Energy (DOE) has a requirement to safely package, store, and ship the plutonium pits that are removed from our disassembled nuclear warheads. Currently, pits are packaged in the AL-R8 storage container which does not meet all of the current standards for storage and transportation and is being replaced by the AT-400A container, a hermetically sealed vessel. Pits currently stored in the AL-R8 and other pits removed during weapon's dismantlement are being packaged in AT-400A containers by an initial, temporary, mechanical packaging line that can only process an estimated maximum of 1,000 pits per year into the new container. At this rate, it will take approximately twenty years to complete the packaging of the projected 17,00 pits. Therefore, to package the pits into the safest container in a more reasonable time, DOE is developing a robotics system that will package an estimated maximum of 1,500 pits per year. By using this system in conjunction with the existing mechanical system, the backlog of pits can be packaged by the year FY 2007; however, the system requires installation in a facility that meets Non-Reactor Nuclear Facility requirements. This project, with a TEC of $7,310,000, will modify an existing non-reactor nuclear facility to accept the new robotics system. The TPC is $20,550,000 because it includes the costs for the development and fabrication of the complete robotics and packaging systems; so that all related costs are reflected for a complete and usable facility.

This project consists of the design, development, production, and installation of the Consolidated Pit Packaging System (CPPS) and the design and construction necessary to support the modification of the Special Nuclear Material Component Staging Facility (SNMCSF), Building 12-116 to house the CPPS. Modifications to the SNMCSF rooms 145, 146, 147, and 148 will include upgrades to the utility, lighting, and heating ventilation and air conditioning (HVAC) systems.

1. Title and Location of Project: Consolidated Pit Packaging System (CPPS) AT-400A Pantex Plant, Amarillo, Texas (Continued)	2a. Project No. 97-D-121 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The CPPS is being developed jointly by Sandia National Laboratories (SNL) and Mason and Hanger-Silas Mason Company, Inc. (MHSM), with technical oversight from Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL). Once developed and implemented the CPPS will have the capacity to repackage 1,500 pits per year from the current container, into the AT-400A container system. The AT-400A container system includes a welded stainless steel inner containment vessel that provides a hermetic seal and a stainless steel outer container. In addition, the hermetic seal of the AT-400A containment vessel allows a final backfill of a non-reactive gas which is ideal for interim storage.

After facility modifications are completed, the CPPS will be installed into the following areas: Room 146 will house an automated processing line that will utilize a Robot to remove the pit from the current container and position it at various automated stations where inspection, weighing, leak detection, and assembly into the AT-400A containment vessel will occur. After assembly into the containment vessel, the equatorial seam of the containment vessel will be welded using an automated Metal Inert Gas welding system. Room 147 will house the leak test and purge and backfill equipment to perform the leak detection and final backfill of the containment vessel. Room 148 will be used as a receiving area for incoming pits to be repackaged, parts to feed the automated line, and for assembly of the AT-400A containment vessel into the AT-400A outer container. Rooms 146, 147, and 148 contain 4,300 gross square feet. The equipment that makes up the CPPS will occupy approximately 1,490 net square feet. The remaining space is required for personnel access to the operating stations that could not be fully automated and for pit movement between operating stations. Room 145 will be modified to include an upgrade to the utilities, lighting, and the HVAC systems. These upgrades will allow room 145 to accept the existing mechanical pit packaging processing line if it needs to be moved from its original location; or the addition of a second automated processing line if it is required to meet future mission requirements.

To meet the 1,500 pits per year capacity requirement, minimize the personnel radiation exposure, and reduce safeguards and security risks, an automated processing line must be developed and implemented in the SNMCSF. To meet the capacity requirements MHSM must develop an automated weighing system, fast leak detection system for the pit and containment vessel, and purge and backfill system. The philosophy used to develop these high capacity vacuum systems will be to build prototype systems that can be used to demonstrate and optimize the capability. Once the capability has been demonstrated it is optimized to provide the highest capacity. The final design is then documented and actual production systems are built and installed in the operating areas. The cost for the MHSM development will be a part of the plant operating expense. These costs include the design and development of the capability, the system optimization, and the hardware costs to build the prototype system. The costs of the equipment procured to perform the production activity will be included as a part of the project capital equipment cost. The highest potential for personnel radiation exposure is associated with the handling of the bare pit. To minimize personnel exposure SNL is developing a robotics system that will unpackage the pit from the current container, remove the inner fixture from the pit, transport the pit to each of the automated operating stations, and assemble the pit into the inner fixture mounted inside the lower half of the AT-400 containment vessel. Development costs for this robotics system include hardware costs for the robot, the robot controller, the computer system for programming the robot, design and hardware costs for tooling, design and production costs for software, and costs associated with risk analyses to determine safety factors for handling nuclear material with a robot.

Once developed this entire system will be transitioned to the operating environment and be used for production. The development costs associated with the robotics system will be funded through operating expense.

Capital equipment will be procured as a part of this project. Prototype equipment will be transitioned to support production wherever possible. The capital equipment required as a part of this project typically falls into one of two categories. There are several pieces of capital equipment required to assemble the production vacuum systems. This equipment includes the leak detection systems, manifolds for the purge and backfill systems, welders, computers for system control, and computer systems for data acquisition and data reduction. The second category is analytical equipment used to support the process. This equipment includes radiation swipe readers, leak detection equipment, and metallography equipment, and other inspection equipment.

1. Title and Location of Project: Consolidated Pit Packaging System (CPPS) AT-400A Pantex Plant, Amarillo, Texas (Continued)	2a. Project No. 97-D-121 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The equipment radiation shielding, which will enclose the manual portion of the robotics operations line, will be designed by MHSM in coordination with Battelle/Pantex. During the development of the CPPS, Battelle/Pantex and MHSM will cooperate to determine adequacy of the design. ALARA (as low as reasonably achievable) principles will be met.

The existing shelving units in Rooms 145 and 148 will be disassembled and relocated to Building 10-9 for excess.

There will be no improvements to land (the property) on this project. Site work will include erection of a temporary construction fence only. All site work will be coordinated with any ongoing utility and construction projects. There will be no exterior utility work required to support this project. Temporary fences will totally enclose the construction area. Gates will be provided at the necessary locations for entry into the construction area. Temporary fences will be located at the required, unbarricaded intraline distance from Building 12-99 to minimize production downtime in this building.

The existing HVAC system serving rooms 145-147 will be modified as required to support the CPPS, including dedicated fan coil units, task exhausts, centralized dehumidifier unit, nuclear grade High Efficiency Particulate Air (HEPA) filters, etc. for these rooms.

Mechanical utilities will be extended as required, including chilled water piping, Plant compressed air, vacuum, control systems etc. to Rooms 145-148. Utilities will be capped and plugged inside Room 145.

Interior electrical utilities will include extensions of secondary electrical power, Automated Energy Management System (AEMS), Radiation Alarm Monitoring System (RAMS), etc. from utilities currently existing in the Building, as applicable to the individual rooms.

Additional energy efficient low bay High Intensity Discharge overhead lighting will be required in Rooms 145-148 to upgrade lighting levels from a non-operational to an operational status.

An Architect-Engineer will perform a Means-of-Egress analysis per National Fire Protection Association (NFPA) 101 to address any Life Safety Code issues, and verify that existing fire protection systems in Rooms 145-148 will be adequate.

MHSM and Pantex Plant have been assigned the missions to perform interim storage of pits and to repackage from the current container into the AT-400A container system by FY 2002 an additional 7,000 pits above the existing mechanical line's capability. To meet these expectations, a project must be completed that provides the capability to package pits into a hermetically sealed vessel for interim storage with the capacity to repackage 1,500 pits per year.

The SNMCSF meets all applicable Non Reactor Nuclear Facility requirements. The design of the facility specifically addressed activities associated with operations involving Special Nuclear Material (SNM). The design is intended to mitigate the risk of a release of radionuclide to the public for natural phenomena such as tornadoes or earthquakes, for accidents such as an explosion in an adjacent facility, or for a processing accident within the facility. Placing the automated pit packaging line in the SNMCSF will take advantage of these design features and reduce the risk of a release of radionuclide to the environment.

The SNMCSF will house other operations involving SNM including interim storage, staging, weighing and leak detection, and radiography which are performed to meet stockpile surveillance requirements. The CPPS project will further consolidate packaging with these other SNM activities in this vault facility. Placing the packaging operations in a vault facility will reduce security risks associated with SNM operations in other facilities. Consolidation of these activities will reduce intra-plant transportation of pits through ramps to other facilities that do not meet the vault type construction. The reduction in transportation will improve both safeguards and security postures.

1. Title and Location of Project: Consolidated Pit Packaging System (CPPS) AT-400A Pantex Plant, Amarillo, Texas (Continued)	2a. Project No. 97-D-121 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Implementation of the CPPS project in the SNMCSF will consolidate SNM processing. The automated pit packaging system will have robotics and control systems that will be very similar to the robotics and control systems utilized in the Weighing and Leak Check System (WALS) and the Pit Automated Radiography (PAR) systems that will be located in the SNMCSF. Commonality between automated systems will allow for additional cross training of personnel for operations and maintenance. Interactions between the automated systems can be optimized. Having all of these common activities in one facility with storage capacity in the same facility will be vital to the CPPS project meeting the capacity requirements.

Utilizing an automated packaging line that, (1) has been optimized for the highest capacity and, (2) has been consolidated in a facility that houses other related activities will meet the mission requirements in the safest most secure and efficient manner. To meet the packaging schedule the CPPS project must have an accelerated schedule with combined Title I/II design beginning in October 1996 and finish of construction in June 1998.

1. Title and Location of Project: Consolidated Pit Packaging System (CPPS) AT-400A Pantex Plant, Amarillo, Texas (Continued)	2a. Project No. 97-D-121 2b. Construction Funded

9. Details of Cost Estimate a/b/

	Item Cost	Total Cost
a. Design and Management Costs		$ 1,330
(1) Engineering design and inspection at approximately 31 percent of construction costs	$ 380	
(2) Construction management costs at approximately 21 percent of construction costs (Item c)	260	
(3) Project management costs at approximately 23% of construction costs (Item c)	290	
(4) Preliminary Safety Analysis Report (PSAR)	120	
(5) Final Safety Analysis Report (FSAR)	280	
b. Land and land rights		0
c. Construction costs		1,220
1. Improvements to land (temporary security fencing)	80	
2. Building	900	
3. Special equipment	0	
4. Other structures	0	
5. Installation of capital equipment	240	
d. M&O contractor construction support		60 c/
e. Capital equipment		3,520
f. Major computer items		0
g. Removal cost less salvage		0
h. Design and project liaison, testing, checkout and acceptance		0
i. Subtotal (a through h)		$ 6,130
j. Contingencies at approximately 19 percent of above costs.		1,180
k. Total line item cost (Section 11.a.1.(a)).		$ 7,310
l. LESS: Non-Federal contribution		0
m. Net Federal total estimated cost (TEC)		$ 7,310

10. Method of Performance

Contracting arrangements are as follows: (a) design, procurement and construction: fixed-price contract awarded on the basis of competitive bidding.

a/ This estimate is based on the Conceptual Design Report dated July 1995.

b/ Costs have been escalated as follows for each portion of the project: ED&I - 6.072% (January 1997); CM/PM - 9.572% (January 1998); Construction - 9.572% (January 1998); Equipment - 9.572% (January 1998). Escalation is based on USDOE/HQ/PR-25/COND Guidelines dated September 1, 1994.

c/ This entry represents M&H Craft Support of the Contractor (barricade erection, x-raying walls etc.).

1. Title and Location of Project: Consolidated Pit Packaging System (CPPS) AT-400A
Pantex Plant, Amarillo, Texas (Continued)

2a. Project No. 97-D-121
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1997	FY 1998	FY 1999	FY 2000	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 820	$ 6,490	$ 0	$ 0	$ 7,310
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 820	$ 6,490	$ 0	$ 0	$ 7,310
2. Other project costs						
(a) R&D necessary to complete project	$ 4,860	$ 2,960	$ 2,560	$ 900	$ 400	$11,680
(b) Conceptual design costs	150	0	0	0	0	150
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project related costs	270	150	910	80	0	1,410
(f) Total other project costs	$ 5,280	$ 3,110	$ 3,470	$ 980	$ 400	$13,240
(g) Total project costs	$ 5,280	$ 3,930	$ 9,960	$ 980	$ 400	$20,550
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 5,280	$ 3,930	$ 9,960	$ 980	$ 400	$20,550

b. Related annual costs (estimated life of project--20 years)	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	333
3. Programmatic operating expenses directly related to the facility	769
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	23
7. Other costs	0
Total related annual costs	$ 1,125

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1. Title and Location of Project: Consolidated Pit Packaging System (CPPS) AT-400A Pantex Plant, Amarillo, Texas (Continued)	2a. Project No. 97-D-121 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item -- Narrative not required.
   (b) PE&D -- None.
   (c) Operating expense funded equipment -- None.
   (d) Inventories -- None.

2. Other project costs
   (a) R&D necessary to complete construction -- The $11,680,000 includes Sandia National Laboratories cost to develop automated robotics equipment, MHSM vacuum technology development, and retooling costs for the pit packaging process.
   (b) Conceptual design -- The $150,000 includes costs for conceptual design report and project management plan and NEPA documentation preparation.
   (c) Decontamination and decommissioning (D&D) -- There are no decontamination or decommissioning costs associated with this project.
   (d) NEPA documentation costs -- Includes preparation and review of NEPA checklist. Costs are included in conceptual design.
   (e) Other project related funding -- The $1,410,000 includes planning, design criteria preparation, A-E selection, preparation and the conduct of an Operational Readiness Review, startup and training.

b. Related annual costs

1. Facility operating costs -- Included in programmatic operating expenses directly related to the project.
2. Facility maintenance and repair costs -- Routine maintenance will be performed by Pantex Plant craftsmen dedicated to this project at an estimated cost of $333,000.
3. Programmatic operating expenses directly related to the facility -- Approximately $769,000 will include 10 production technicians, one supervisor and one engineer working normal 40 hour weeks. Total operating FTE's are based on a 20 year period, which will be considerably less than the first five years of operation, when 14 technicians and one supervisor will be required.
4. Capital equipment not related to construction but related to the programmatic effort of the facility -- There are no capital equipment costs, not related to construction, that are related to the programmatic effort of the project.
5. GPP or other construction related to the programmatic effort -- There are no maintenance, repair, GPP or other construction costs related to the programmatic effort of the project.
6. Utility costs -- Costs consists of the cost of electricity required for the project estimated at $23,000.
7. Other Costs -- None.

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1. Title and Location of Project: Nuclear Materials Storage Facility Renovation
Los Alamos National Laboratory, Los Alamos, New Mexico

2a. Project No. 97-D-122
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1997

3b. A-E Work (Titles I & II) Duration: 28 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 2nd Qtr. FY 1999

4b. Date Construction Ends: 2nd Qtr. FY 2001

6. Current Cost Estimate:
TEC -- $45,292
TPC -- $56,653

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1997	$ 4,000	$ 0	$ 4,000	$ 3,380
1998	9,200	0	9,200	7,495
1999	15,200	0	15,200	13,767
2000	12,150	0	12,150	13,767
2001	4,742	0	4,742	6,883

8. Project Description, Justification and Scope

This project provides necessary renovations to the 84-D-104, Nuclear Materials Storage Facility, an FY 1984 line item project that was not designed or constructed to applicable DOE Order 6430.1A standards and requirements. The Los Alamos Nuclear Materials Storage Facility (NMSF) has never been operational. Funding is required to correct deficiencies in the building discovered after its beneficial occupancy in February 1987.

The NMSF is a multi-level (ground floor, intermediate level and basement) storage vault designed and constructed for long and intermediate term storage of large quantities of special nuclear materials (SNM). In addition to the storage vault, facility support areas include a secure shipping and receiving area, Safe Secure Trailer (SST) vehicle garage and dock, equipment spaces, non-destructive assay (NDA), toilet/change rooms, general storage areas, a freight elevator, and a transfer tunnel to connect NMSF to the existing plutonium facility at TA-55. The entire facility is 30,400 gross square feet. The multi-level hardened vault is approximately 15,700 square feet and contains shipping and receiving, NDA, general storage on the ground level, and an approximately 8,500 square feet SNM vault in the basement. The automated storage and retrieval equipment (overhead gantry robot) is controlled by micro-computers connected to the Los Alamos Material Accounting System. General storage for oversized items is also provided in the vault area.

1. Title and Location of Project: Nuclear Materials Storage Facility Renovation Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 97-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Required modifications to achieve facility operation are as specified below:

- Safeguards and Security Upgrades including Perimeter Intrusion Detection and Assessment System (PIDAS) additions and hardened control point with necessary vestibule areas
- Install new mechanical and electrical equipment
- New High Efficiency Particulate Air (HEPA) Filtered HVAC System
- New Utility building to house natural gas boiler and chillers/pumps
- Reconfiguration of "hardened" structure to establish Material Access Area (MAA)
- Support Area Reconfiguration to prevent co-mingling and establish radiological control point
- Passive Vault Cooling System
- Vault Storage Array Reconfiguration
- Grounding counterpoise system to support sensitive equipment (e.g., alarms, monitors, and NDA)

Significant Changes

- Project was originally constructed as a FY 1984 line item and beneficial occupancy was granted in February 1987
- Facility was never operated due to design and construction deficiencies
- Laboratory burdens have been added to this project (FY 1997 new start)

The primary purpose of the project is to renovate an existing FY 1984 line item project that has never been operational to comply with DOE Orders 6430.1A and the 5480 series, particularly radiation control and exposure. The NMSF was developed as the central intermediate and long-term storage facility for LANL and is included in LANL's long-range plan. There is no other building at LANL with the storage capacity and protective devices that are available in the NMSF.

DOE has recently assigned weapons surveillance on New Materials Laboratory Testing (NMLT), Stockpile Laboratory Testing (SLT), and Shelf Life Program (SLP) activities from EG&G Rocky Flats Plant to Los Alamos National Laboratory (LANL). Each of these activities will be completed at LANL's PF-4 (TA-55) facility and will require a significant reduction in PF-4 vault holdings to accomplish this added mission. The NMSF, with its tunnel connection to PF-4, is the most advantageous location to move the PF-4 holdings and still keep them close enough to continue on-going plutonium process missions. This action meets the original intent of NMSF, which was to consolidate satellite storage activities throughout LANL to make each satellite's vault available to programmatic requirements.

Engineering studies and the Conceptual Design Report have determined the most cost-effective methodologies to bring the NMSF into compliance with DOE and Federal requirements. Those studies have included radiation protection, heat removal, safeguards and security, HVAC criteria, and hazards analysis. Additionally, operational user requirements and storage criteria have been studied, a comparison of DOE Order 6430.1A criteria to as-built conditions has been conducted and criticality assessments and unshielded radiological dose rate calculations have been made to provide a baseline for additional shielding requirements in the facility. Each of these studies has verified the need for the recommended renovations.

1. Title and Location of Project: Nuclear Materials Storage Facility Renovation Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 97-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Additional justification for the NMSF renovation is presented as follows:

- The NMSF provides the most cost-effective means to store NM at LANL. This is attributed to its proximity to PF-4, its large automated storage capacity and its built-in security features which reduce operating costs.
- The NMSF would establish an intermediate to long-term storage facility at LANL, enabling the PF-4 working vault in TA-55 to be used as a working vault: the continued use of the PF-4 working vault for storage of material excess to current activities significantly contributes to radiation exposures among PF-4 vault operations personnel, which is significantly more than the proposed RADCON manual design limits.
- The NMSF provides enhanced safeguards and security for NM operations (fewer personnel with access to intermediate/long-term storage material, remote handling/access to stored material, SST garage for enclosed loading/unloading activities, a tunnel for material transport to/from TA-55 processing areas, located within an existing Category I Protected Area, etc.).
- Removal of much of the LANL inventory to this storage facility will result in reduced radiation exposure levels.
- Upgrade vault shielding to current radiological control standards.
- The NMSF provides LANL with the facilities to meet its current missions, support lead laboratory activities, and to support interim storage options for LANL (to address site facility/storage issues) and the DOE (for complex-wide issues).

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1. Title and Location of Project: Nuclear Materials Storage Facility Renovation Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 97-D-122 2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 8,979
(1) Engineering design and inspection at approximately 22.2 percent of construction costs	$ 6,177	
(2) Construction management costs at approximately 4.0 percent of construction costs	1,116	
(3) Project management at 6.1 percent of construction costs	1,686	
b. Land and land rights		0
c. Construction costs		27,821
1. Improvements to land	36	
2. Buildings	8,942	
3. Special equipment	17,965	
4. Utilities	96	
5. Demolition	782	
d. Standard equipment		651
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 37,451
i. Contingencies at approximately 20.9 percent of above costs		7,841
j. Total line item cost (Section 11.a.1.(a))		$ 45,292
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 45,292

10. Method of Performance

Design and inspection shall be performed under a negotiated architect or engineer contract. Construction and procurement shall be accomplished by fixed price contracts awarded on the basis of competitive bidding. Procurement of automated storage/retrieval equipment by competition fixed price contract.

1. Title and Location of Project: Nuclear Materials Storage Facility Renovation
Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)

2a. Project No. 97-D-122
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1997	FY 1998	FY 1999	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 3,380	$ 7,495	$13,767	$20,650	$45,292
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 3,380	$ 7,495	$13,767	$20,650	$45,292
2. Other project costs						
(a) R&D necessary to complete project	$ 2,908	$ 135	$ 200	$ 600	$ 979	$ 4,822
(b) Conceptual design costs	3,160	0	0	0	0	3,160
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project related costs	986	165	100	1,010	1,118	3,379
(f) Total other project costs	$ 7,054	$ 300	$ 300	$ 1,610	$ 2,097	$11,361
(g) Total project costs	$ 7,054	$ 3,680	$ 7,795	$15,377	$22,747	$56,653
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 7,054	$ 3,680	$ 7,795	$15,377	$22,747	$56,653

b. Related annual costs (estimated life of project--30 years)	
1. Facility operating costs	$ 4,817
2. Facility maintenance and repair costs	1,276
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	320
7. Other costs (Environmental, Waste Management, Security/Safeguards)	963
Total related annual costs	$ 7,376

1. Title and Location of Project: Nuclear Materials Storage Facility Renovation Los Alamos National Laboratory, Los Alamos, New Mexico (Continued)	2a. Project No. 97-D-122 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- will provide a complete facility.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- Includes Engineering Studies, thermodynamic modeling, radiation modeling and heat removal studies.
      (b) Conceptual design -- Includes Functional and Operational Requirements, Conceptual Design Reports, Construction Project Data Sheets and Value Engineering activities: Preliminary Safety Analysis Report, Safety Analysis Report, Operational Readiness Review and startup activities. Many activities included in this cost category were begun in FY 1994.
      (c) Decontamination and Decommissioning (D&D) -- None.
      (d) NEPA documentation -- None.
      (e) Other project related funding -- NEPA documentation, includes Sitewide EIS support.

b. Related annual costs

   1. Facility operating costs -- This activity covers all staffing activities.
   2. Facility maintenance and repair costs -- Approximately $1,276,000 per year for repair and replacement costs.
   3. Programmatic operating expenses directly related to the facility -- $0 per year.
   4. Capital equipment not related to construction but related to the programmatic effort of the facility -- None.
   5. GPP or other construction related to the programmatic effort -- None.
   6. Utility costs -- $320,000 per year.
   7. Other Costs -- $963,000 related to Environmental/Waste Management, Security/Safeguards.

1. Title and Location of Project: Structural Upgrades
Kansas City Plant, Kansas City, Kansas

2a. Project No. 97-D-123
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1997

3b. A-E Work (Titles I & II) Duration: 25 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 3rd Qtr. FY 1998

4b. Date Construction Ends: 3rd Qtr. FY 2003

6. Current Cost Estimate:
TEC -- $18,000
TPC -- $19,800

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1997	$ 1,400	$ 0	$ 1,400	$ 600
1998	4,800	0	4,800	2,500
1999	6,400	0	6,400	4,100
2000	5,400	0	5,400	5,200
2001	0	0	0	2,500
2002	0	0	0	2,000
2003	0	0	0	1,100

8. Project Description, Justification and Scope

This project is required to correct structural overstress caused by gravity loads and will reinforce masonry walls to resist seismic loading within the DOE controlled portion of the Bannister Federal Complex to ensure life safety. The first part of this line item is required to provide structural overstress relief in accordance with current building code and DOE Order requirements to ensure life safety. This type of overstress is caused by gravity loads (dead loads, live load and snow load) and wind loading only. The structural evaluation is still on-going, however, the findings to date indicate that corrective actions are needed to ensure life safety. Overstressed locations will be repaired to reduce the possibility of structural failure and bring the structure into conformance with DOE Orders and codes.

The second part of this line item is required to reinforce masonry walls to resist seismic loading. Approximately 75 percent of the masonry walls in the DOE controlled part of the Federal Complex are not reinforced to resist seismic loading. Seismic codes were not in place when the Kansas City Plant was constructed. Potential seismic overstresses have been identified because of the presence of many unreinforced masonry walls added to the building for fire protection purposes. The structural capacity of these unreinforced walls falls below that of the remaining structure and would fail at an early stage of seismic activity.

1. Title and Location of Project: Structural Upgrades, Kansas City Plant, Kansas City, Kansas (Continued)	2a. Project No. 97-D-123 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Corrective activities will be performed in DOE controlled areas only, unless an item is identified through the engineering study that would affect both DOE and the General Services Administration. This project will include the following upgrades:

- Column ribs will be post tensioned on end bays to increase bending moment capacity. This will be done by tensioning two steel rods underneath the subject ribs. The rods will be anchored into the end bay roof beam and bolted through to the interior roof beam.
- Selected rib ends will be supported with steel suspenders and long threaded rods through the roof shell or saddles and fastened to the roof beams to increase rib shear capacity and overcome the member strength loss due to existing cracking caused by excessive shear loading.
- Roof shell openings will be reinforced with steel straps adjacent to openings and parallel to the barrel axis. This provides a means of externally reinforcing the thin concrete shell.
- The mezzanine roof slab will be reinforced with intermediate steel beams supported by the concrete roof support beams.
- Supplemental support will be provided to mezzanine concrete roof structure integrity. This would stop further deterioration of the shell.
- Roof shell cracks will be injected with epoxy to reestablish roof structure integrity. This would stop further deterioration of the shell.
- Structural steel blocking will be attached to the roof structure on each side of existing masonry walls. This will eliminate drift during seismic activity and ultimately failure of the walls independent of the remaining structure. This blocking would be spaced approximately 4 feet center to center. The blocking would consist of steel angles fastened to a horizontal surface with the vertical leg of the angle placed against the top of the masonry wall and flat plates fastened to vertical surfaces of the roof structure and lapped down over the top course of the masonry walls.
- Steel strong-backs will be installed adjacent to masonry walls. This strong-back will be a structural tube fixed to the building floor at the bottom of the wall and roof structure at the top. The wall would be bolted to the strong-backs at approximately 4 feet centers. The strong-backs themselves would be on 8 foot centers. This would prevent a tall wall from collapse during a seismic event that produced lateral movement normal to the wall.
- The top of free-standing masonry walls will be supported with roof structure mounted braces. These braces would then be mounted to a steel strut fastened to the roof.

On December 16, 1993, a Kansas City Susceptibility Review and Walkdown was held at the Kansas City Plant at Albuquerque Operations Office, and Headquarters offices including the Office of Engineering and Operations Support, Office of Facilities, and Office of Construction and Capital Projects. This review was initiated as a result of the September 1993 report by an outside structural consulting firm that documented two principal areas of concern: existing structural overstresses and numerous unreinforced interior masonry walls. It was determined during the review that the structural overstresses and unreinforced masonry walls findings were an immediate concern as follows:

"First and foremost are the areas of facility structural overstress which pose a failure hazard. Secondly, the extensive amount of unreinforced masonry walls which pose a significant employee (life safety) hazard at very low ground accelerations."

1. Title and Location of Project: Structural Upgrades, Kansas City Plant, Kansas City, Kansas (Continued)	2a. Project No. 97-D-123 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Consequent planning resulted in the incorporation of structural modifications in all ongoing projects which appreciably renovate affected areas to provide an immediate response to initiate risk reduction and potential loss of government assets. These project changes were approved through the baseline change control process. Deficiencies in the remainder of the plant not affected by on-going projects are being addressed in this line item submission.

Gravity overstresses throughout the Kansas City Plant are currently being evaluated. The project is currently scoped and estimated to allow 10 percent overstresses, as allowed per DOE/HQ direction. The data gathered to date reflect the following:

Main Manufacturing Building Overstresses Under Gravity Loading:

- Roof Ribs - 14 percent of the ribs are overstressed.
- Roof Beams - < 1 percent of the beams are overstressed.
- Roof Shell With Openings - 34 percent of the roof shells are overstressed.
- Roof Shell Without Openings - 0 percent.
- Columns - 4 percent of the columns are overstressed. Basement Level Supported Floor Slab - 5 percent of the floor slab is overstressed.
- 2nd Level Supported Floor Slab - 6 percent of the floor slab is overstressed.

Seismic events can be generated by two faults. The New Madrid Fault is approximately 250 miles east of the Kansas City Plant. The New Madrid fault system extends 120 miles from the area of Charleston, Missouri and Cario, Illinois through New Madrid, Missouri and to Marked Tree, Arkansas. It crosses five state lines and crosses the Mississippi River in three places and the Ohio River in two places. The fault is active, averaging more than 200 measured events per year (1.0 or more on the Richter scale), about 20 per month. Tremors large enough to be felt (2.5-3.0 on the Richter scale) are noted annually. Every 18 months the fault releases a shock of 4.0 or more capable of local minor damage. Magnitudes of 5.0 or greater occur about once per decade, can do significant damage, and be felt in several states. A damaging earthquake along the fault of 6.0 or greater reoccurs about every 80 years with the last one in 1895. A major earthquake along the fault of 7.5 of greater happens every 200-300 years, with the last one in 1812. A quake of this magnitude would be felt throughout half of the United States. This information is based on a document titled "About the New Madrid Fault" from Southeast Missouri State University Center for Earthquake Studies, David Stewart, Director. The document is undated.

The other fault that could affect the Kansas City Plant is the Humbolt Fault Zone (Nehemma Ridge) located approximately 80 miles west of Kansas City in the Manhattan-Wamego, Kansas area. The largest earthquake that has occurred in Kansas is a probable Richter magnitude of about 5.2-5.3, which occurred in 1867 and can be expected to occur every 100 years. An earthquake of Richter magnitude 6.0-6.5 at this fault is likely to occur on average once in about 1000 years. This information is based on a document titled "Kansas Geological Survey" from the University of Kansas on October 10, 1990 by Don W. Steeples, Ph.D., Seismologist and Deputy Director.

The structural studies now underway will evaluate the design of the current walls, determine what forces they can be withstand, and evaluate the seismic probabilities from the faults in the areas to determine the corrective actions required. The project is currently scoped to meet the Uniform Building Code. Studies for earthquake to date have shown that the existing masonry walls are inadequate to withstand a low to moderate seismic event and should be reinforced.

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1. Title and Location of Project: Structural Upgrades, Kansas City Plant, Kansas City, Kansas (Continued)

2a. Project No. 97-D-123
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The applicable DOE Orders and Codes that apply to this project are as follows:

- DOE Order 5480.28 Natural Phenomena Hazards (NPH) Mitigation Section 10a.(1) Design and Evaluation, which states "An additional objective for selected structures, systems and components (SSC) or site activities is to prevent loss of capability to perform functions consistent with: (1) importance to safety for workers and the public; (2) impact on the environment; (3) repair/replacement costs; (4) programmatic mission. NPR design and evaluation criteria for SSCs for earthquake, wind, flood shall be used for DOE laboratories, reservations, and production facilities."

- Executive Order 12941 "Seismic Safety of Existing Federally Owned or Leased Buildings."

- The American Institute of Steel Construction (A.I.S.C.), American Concrete Institute (A.C.I.), and Uniform Building Code (UBC) define analysis and design requirements for corrective actions.

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 4,065
(1) Engineering design and inspection at approximately 23 percent of construction costs, (Item c (Design, Drawings, and Specifications: $815)	$ 2,475	
(2) Construction management costs	842	
(3) Project management at 7 percent of construction costs (Item c).	748	
b. Land and land rights		0
c. Construction costs		10,830
1. Improvements to land	0	
2. Building modifications	10,830	
3. Special equipment	0	
4. Utilities	0	
5. Special facilities	0	
d. Standard equipment		360
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 15,255
i. Contingencies at approximately 18 percent of above costs		2,745
j. Total line item cost (Section 11.a.1.(a))		$ 18,000
k. LESS: Non-federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 18,000

10. Method of Performance

Design and inspection shall be performed under a KCP negotiated architect-engineer contract. Construction will be fixed price contract awarded after competitive proposals and administered by the KCP.

1. Title and Location of Project: Structural Upgrades, Kansas City Plant, Kansas City, Kansas (Continued)

2a. Project No. 97-D-123
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1997	FY 1998	FY 1999	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 600	$ 2,500	$ 4,100	$10,800	$18,000
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating Expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 600	$ 2,500	$ 4,100	$10,800	$18,000
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	615	0	0	0	0	615
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project related costs	200	200	200	200	385	1,185
(f) Total other project costs	$ 815	$ 200	$ 200	$ 200	$ 385	$ 1,600
(g) Total project costs	$ 815	$ 800	$ 2,700	$ 4,300	$11,185	$19,800
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 815	$ 800	$ 2,700	$ 4,300	$11,185	$19,800

b. Related annual costs (estimated life of project--30 years)	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 0

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1. Title and Location of Project: Structural Upgrades, Kansas City Plant, Kansas City, Kansas (Continued)	2a. Project No. 97-D-123 2b. Construction Funded

2. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- None.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- None.
      (b) Conceptual design -- Approximately $615,000 will be incurred to prepare Conceptual Design Report.
      (c) Decontamination and Decommissioning (D&D) -- None.
      (d) NEPA Documentation -- None.
      (e) Other project related funding -- Approximately $1,185,000 will be expended on other project related items. These costs include pre-Title I activities, construction support, beneficial occupancy inspection, operational readiness reviews, and other activities.

b. Related annual costs

1. Facility operating costs -- None.
2. Facility maintenance and repair costs -- None.
3. Programmatic operating expenses directly related to the facility -- None.
4. Capital equipment not related to construction but related to the programmatic effort of the facility -- None.
5. GPP or other construction related to the programmatic effort -- None.
6. Utility costs -- None.
7. Other Costs -- None.

1. Title and Location of Project: Steam Plant Wastewater Treatment Facility Upgrade
Y-12 Plant, Oak Ridge, Tennessee

2a. Project No. 97-D-124
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1997

3b. A-E Work (Titles I & II) Duration: 12 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 3rd Qtr. FY 1998

4b. Date Construction Ends: 4th Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $ 3,600
TPC -- $ 4,100

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1997	$ 600	$ 0	$ 600	$ 500
1998	1,900	0	1,900	800
1999	1,100	0	1,100	2,300

8. Project Description, Justification, and Scope

The purpose of the project is to upgrade the existing facility with the state-of-the-art equipment to treat the wastewaters from the Steam Plant and thereby meet the discharge limits of the National Pollutant Discharge Elimination System (NPDES) permit.

This project consists of installing equipment to improve the existing process and an expansion of Building 9616-9 to accommodate the equipment. The equipment to be installed is for aeration, final pH adjustment, and filtration. The aerator will be installed in the north basin. The final pH adjustment, and the filtration equipment, complete with pumps and piping will be installed in the expanded building. Some of the existing piping will be demolished. Field instrumentation will consist of flow meters, pressure gages, level indicators, and pH indicators. A Breakroom will also be provided on the second floor of the building expansion. The expanded section of the building will have fire protection, heating, ventilation, electrical service, telephone lines and Y-12 Plant paging system.

The discharge of treated wastewaters from the Y-12 Plant, into East Fork Popular Creek (EFPC) must comply with the NPDES permit issued by the Tennessee Department of Environment and Conservation (TDEC). The NPDES permit issued is good for a period of five years, and is expected that each new permit will be more stringent than the last one. A series of NPDES permit infractions have occurred over the last few years at the Steam Plant Wastewaters Treatment Facility (SPWTF). This project, when completed, will provide the SPWTF an increased capability to comply with the NPDES permit.

1. Title and Location of Project: Steam Plant Wastewater Treatment Facility Upgrade Y-12 Plant, Oak Ridge, Tennessee (Continued)	2a. Project No. 97-D-124 2b. Construction Funded

8. Project Description, Justification, and Scope (Continued)

If no remedial action is taken and violations continue, DOE and the Y-12 Plant could receive Notices of Violation (NOV) and be subject to criminal lawsuits. At present, a lawsuit initiated by the Friends-of-the-Earth, an environmentalist group, is in progress against DOE.

The FY 1997 funds will provide for Titles I and II engineering and associated project integration activities.

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management Costs		$ 760
(1) Engineering design and inspection at approximately 23 percent of construction costs, (Item c (Design, Drawings, and Specifications: $140,000).	$ 480	
(2) Construction management costs	150	
(3) Project management at 6 percent of construction costs (Item c).	130	
b. Land and land rights		0
c. Construction costs		2,080
1. Improvements to land	0	
2. Buildings	960	
3. Special equipment	1,090	
4. Utilities	30	
5. Demolition	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		160
h. Subtotal (a through g)		$ 3,000
i. Contingencies at approximately 20 percent of above costs		600
j. Total line item cost (Section 11.a.1.(a)).		$ 3,600 b/
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 3,600

10. Method of Performance

Title I and II design will be performed by an A-E. Lockheed Martin Energy Systems (LMES) will review and approve the design documents prepared by the A-E and will provide Title III field inspection and final utility connections. Procurement and construction will be performed by a fixed price subcontractor, with construction management to be provided by MK-Ferguson of Oak Ridge Company.

a/ These estimates are based on a conceptual design issued in January 1995.

b/ Applicable escalation rates are taken from the DOE Oak Ridge Field Office escalation multipliers issued August 1994. The escalation rates were based on escalation of 3.3 percent in FY 1997, 3.3 percent in FY 1998, and 3.2 percent for FY 1999 as amended.

1. Title and Location of Project: Steam Plant Wastewater Treatment Facility Upgrade
Y-12 Plant, Oak Ridge, Tennessee (Continued)

2a. Project No. 97-D-124
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1997	FY 1998	FY 1999	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 500	$ 800	$ 2,300	$ 0	$ 3,600
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 500	$ 800	$ 2,300	$ 0	$ 3,600
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	160	0	0	0	0	160
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	40	0	0	0	0	40
(e) Other project related costs	300	0	0	0	0	300
(f) Total other project costs	$ 500	$ 0	$ 0	$ 0	$ 0	$ 500
(g) Total project costs	$ 500	$ 500	$ 800	$ 2,300	$ 0	$ 4,100
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 500	$ 500	$ 800	$ 2,300	$ 0	$ 4,100

b. Related annual costs (estimated life of project--20 to 25 years)	
1. Facility operating costs	$ 20
2. Facility maintenance and repair costs	6
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	15
7. Other costs	0
Total related annual costs	$ 41

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1. Title and Location of Project: Steam Plant Wastewater Treatment Facility Upgrade Y-12 Plant, Oak Ridge, Tennessee (Continued)	2a. Project No. 97-D-124 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project costs

1. Total facility costs
   (a) Line item -- Construction line item costs for the engineering design, procurement, demolition, and construction are estimated to be $3,600,000.
   (b) PE&D -- None.
   (c) Operating expense funded equipment -- None.
   (d) Inventories -- None.

2. Other project costs
   (a) R&D necessary to complete construction -- None.
   (b) Conceptual design -- Approximately $160,000 was incurred to develop the scope of the project.
   (c) Decontamination and Decommissioning (D&D) -- None.
   (d) NEPA documentation -- Approximately $40,000 will be incurred for NEPA determination development cost.
   (e) Other project related funding -- Approximately $300,000 will be expended on other project related items broken out as follows: design criteria, $110,000, plant support for duration of project. $20,000; startup operations, $30,000; safety documentation, $100,000; and feasibility study, systems requirement, value engineering, $20,000; site characterization, $20,000.

b. Related annual costs

1. Facility operating costs -- The associated overhead for facility operating costs will cost approximately $20,000 annually.
2. Facility maintenance and repair costs -- The annual costs for direct labor, materials and supplies, and associated overhead for maintenance and repair activity are estimated to cost approximately $6,000.
3. Programmatic operating expenses directly related to the facility -- None.
4. Capital equipment not related to construction but related to the programmatic effort of the facility -- None.
5. GPP or other construction related to the programmatic effort -- None.
6. Utility costs -- None.
7. Other Costs -- None.

1. Title and Location of Project: Sewage Treatment Quality Upgrade (STQU), Pantex Plant, Amarillo, Texas

2a. Project No. 96-D-122
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 25 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $11,300
Total Project Cost (TPC) -- $12,400

4a. Date Physical Construction Starts: 2nd Qtr. FY 1998

4b. Date Construction Ends: 2nd Qtr. FY 2001

6. Current Cost Estimate:
TEC -- $ 11,300
TPC -- $ 12,400

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1996	$ 600	$ 0	$ 600	$ 250
1997	100	0	100	300
1998	6,900	0	6,900	5,700
1999	3,700	0	3,700	4,400
2000	0	0	0	500
2001	0	0	0	150

8. Project Description, Justification and Scope

The Sewage Treatment Quality Upgrade project will control and process liquid from industrial processes, stormwater runoff, and sanitary wastewater.

FY 1997 funds will be used for design, procurement and construction activities.

Waste Water Treatment System

The Waste Water Treatment System will be upgraded to meet known and anticipated environmental regulations. New effluent mechanical bar screen, flow equalization, multi-channel oxidation ditch, secondary clarification, ultra-violet light disinfection and sludge holding/stabilization will be provided.

1. Title and Location of Project: Sewage Treatment Quality Upgrade (STQU), Pantex Plant, Amarillo, Texas	2a. Project No.: 96-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

- Treatment Plant discharge will be to a natural wetland.
- Revised Texas Natural Resource Conservation Commission (TNRCC) Discharge Permit will contain the following permit limits:

Biochemical Oxygen Demand (BOD)	≤ 5 mg/l
Total Suspended Solids (TSS)	≤ 5 mg/l
Ammonia Nitrogen (NH_3N)	≤ 2 mg/l
Phosphorous (P)	≤ 1 mg/l
Dissolved Oxygen (DO)	≤ 7 mg/l
Fecal Coliform	≤ 200 counts
Total Chlorine Residual (TCR)	≤ .5 mg/l

- Effluent waste water quality is:

Flow	.65 mgd average (5/9)
	.20 mgd average (2/7)
	1.00 mgd average (future)
BOD	54 mg/l average
	100 mg/l peak
COD	104 mg/l average
	NH_3N 15 mg/l

Upgrade of the Sanitary Sewer System in Zone 12.

This upgrade will provide for the replacement of between 5,000 to 6,000 linear feet of six, eight and twelve inch sanitary sewer pipe and 27 sanitary manholes in a portion of Zone 12 of the Pantex Plant. The existing sanitary sewer consists of vitrified clay pipe and brick manholes which are approximately 50 years old. The existing system is badly deteriorated and is allowing large amounts of infiltration and exfiltration to occur. Portions of the Zone 12 sewer system have already undergone recent repair and replacement.

a. The Sewer replacement and repair limits were outlined by Pantex personnel. A limited field investigation was conducted to verify existing conditions. A survey of the existing sewer system will be conducted as part of Title I Design to determine the final scope of work.

b. Sewer elevations and profiles determined by engineering judgment and information from a previous project similar to this one.

c. Solid Waste Management Units (SWMU) were determined from information provided by Pantex personnel. During Title I, additional field investigation will accurately determine the SWMU's.

d. The percent of pipe and manholes to be repaired or replaced was made by engineering judgment. The design engineers used as a basis the adjacent similar project for replacing sanitary sewer lines.

Elimination of Industrial Discharge to Surface Ditches.

The HE contaminated waste water treatment systems at Buildings 11-20 and 11-50 will be revised to add treated water holding sumps and piping to discharge treated water to the sanitary sewer rather than to grade. A treatment system of sumps, pumps, and filtering equipment will be provided for the HE contaminated waste water at Building 12-19. The treated water from Building 12-19 will be discharged to the sanitary sewer.

8. Project Description, Justification and Scope (Continued)

A scrubber water recirculation and filtering system will be provided for the rotoclones in Building 12-19 to improve equipment performance and reduce discharge of contaminated water.

a. Burning of HE contaminated particulate filters (string and cartridge) and carbon filter material will continue to be allowed.

b. Particulate filtering followed by carbon filtering is and will continue to be adequate as a treatment technique for HE contaminated waste water.

c. No other contaminants are in the waste water streams that would either prevent burning as a means of disposal nor require other means of treatment (such as heavy metals).

d. No provisions will be made to limit storm water infiltration into the system. (Capacities have been based on storm water infiltration.)

e. Direction from Pantex personnel that "double containment" is not required in the piping and sump systems is correct.

f. All cooling water from Building 12-19 is put into the trench system or the sanitary sewer. This includes the cooling water for the Bay 13 100 gallon kettle jacket cooling and for the Bay 15 300 gallon kettle jacket cooling.

g. Additional waste stream characterization will be conducted during Title I Design.

Modify Plant Storm Water System

This upgrade will provide best management practices to control storm water runoff from existing paved parking areas within the DOE Pantex Plant. The control of storm water will prevent erosion, inhibit sediment deposition in natural waterways, and prevent the migration of possible pollutants within the storm water runoff stream.

All equipment will consider seismic loading. Seismic Zone 1 will be used per Uniform Building Code (UBC) maps. Seismic loads will be calculated in accordance with University of California Research Lab (UCRL) 15910. UCRL 15910 specifies that Important or Low Hazard Facilities be designed according to the UBC procedure for equivalent static load. UCRL 15910 specifies that site specific values be used in the UBC equation. UCRL specifies an importance factor of 1.25. UCRL refers to UCRL 53582 Revision 1 for a site specific value of the factor C in the UBC equation.

The modifications to the Storm Water System at the Pantex Plant portion of the Conceptual Design Report (CDR) were prepared with the following assumptions:

a. National Pollution Discharge Elimination System (NPDES) permit limitations will be established for the Pantex Plant. A draft permit application has been submitted by the Pantex Plant, but as of this date, no effluent limitations have been set.

b. As part of the United States Environmental Protection Agency's (EPA) requirements to implement the Clean Water Act, the Pantex Plant will be required to implement Best Management Practices (BMP's) to control contaminants from entering the plant's storm water system.

c. The BMP's presented within the CDR are based on best engineering judgements for the various runoff situations present at the Pantex Plant. Actual runoff conditions, contaminants, and NPDES requirements will be based upon the final NPDES permit.

d. Various paved parking lots throughout the Pantex Plant were identified by Pantex personnel for inclusion in a Best Management Practices Plan. These parking lots were field inspected for existing drainage patterns and structures.

1. Title and Location of Project: Sewage Treatment Quality Upgrade (STQU), Pantex Plant, Amarillo, Texas	2a. Project No.: 96-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

e. The majority of the parking lots are for Privately Owned Vehicles (POV's). As such, the contaminants that can reasonably be expected as storm water runoff are traces of oil, grease, fuel, antifreeze, and sediment. The only parking lot with the potential for a larger contaminant concentration is at the Vehicle Maintenance Facility, Building 16-1.

f. The first fifteen minutes of storm water runoff will contain the bulk of the contaminants. As a minimum, this project will filter and briefly detain the storm water runoff from the parking lots by the use of aggregate filled basins.

g. Except for the plant parking lots, the CDR does not address storm water entering the existing five playas within the Pantex Plant. The issue of the playas being considered a wetland has not been addressed.

h. Waste streams characterization for the storm water flows associated with the various drainage areas will be conducted during Title I design. This will include sampling of rainwater within the playas and sampling of storm water during rainfall events.

Discharge volumes in 1992 suggest that we are at 78 percent capacity of TNRCC Permit No. 02296 flow limits; therefore, engineering and financial investigations must commence for expansion and/or upgrading of Waste Water Treatment Facility (WWTF) and/or collection facilities (31 TAC S 305.126a & b).

a. The current method of disinfection of the WWTF effluent must be modified to meet total toxicity testing requirements. The effluent will need to be dechlorinated subsequent to chlorination prior to discharge or an alternate method of disinfecting the effluent installed. An alternate method of disinfecting may be preferable in light of the formulation of trihalomethanes which result from the chlorination process.

b. Elimination of industrial discharges to the surface storm drainage system must be accomplished in order to comply with environmental statutes and regulations.

c. Sewer lines at the Pantex Plant have been identified in the past through spot television inspections as being in poor physical condition. The specific lines that have been so identified have been replaced by recent sewage system improvement projects. However, some of the sewer lines in the northern part of Zone 12 are of the same age and construction are assumed to also to be deteriorated and requiring replacement. This suggests that replacement of these lines is appropriate.

This project will be in compliance with the following regulations.

a. Texas Natural Resources Conservation Commission

Permit to Discharge Wastes No. 02296
Texas Water Code Chapter 26
31 TAC S 305.126a & b
31 TAC S 317.4

b. Environmental Protection Agency

NPDES Permit for Industrial Discharges
NPDES Permit for Storm Water Discharges

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8. Project Description, Justification and Scope (Continued)

c. Wetlands

Executive Order 11990
CWA S 404, 33 USCS S 1344

d. Endangered Species Act

Chapter 35 of Title 16, 16 USCS S 1531-1543

e. RCRA

9. Details of Cost Estimate a/ b/

	Item Cost	Total Cost
a. Design and Management Costs		$ 1,700
(1) Engineering design and inspection at approximately 9.7 percent of construction costs (Item c) (Includes PSAR/FSAR)	$ 750	
(2) Construction management at 11 percent of construction costs (Item c)	820	
(3) Project management at 1.7 percent of construction costs	130	
b. Land and land rights		0
c. Construction costs		7,700
1. Improvements to land including grading, drainage, paving, parking, fencing, lighting, pedestrian access walks	1,110	
2. Buildings (Waste Water Treatment Plant Support Buildings, Addition to Building 12-19)	3,860	
3. Special equipment	0	
4. Utilities, including electrical power, water, sanitary sewer lines, compressed air, fuel oil, condensate return lines, etc.	2,710	
5. Demolition	0	
6. M&O contractor construction support	20	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		9,400
i. Contingencies at approximately 20.2 percent of above costs		1,900
j. Total line item cost (Section 11.a.1.(a))		$ 11,300
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 11,300

a/ This estimate is based on the Conceptual Design Report, which is 100 percent complete. Total costs have been rounded to the nearest hundred thousand.

b/ Costs have been escalated as follows for each portion of the project: Building ED&I 8.980 percent (December 1996); CM/PM 15.360 percent (September 1998); Construction 14.430 percent (June 1998), Equipment (not applicable). Escalation is based on ICE/CCMD/HQ Guidelines.

1. Title and Location of Project: Sewage Treatment Quality Upgrade (STQU), Pantex Plant, Amarillo, Texas

2a. Project No.: 96-D-122
2b. Construction Funded

10. Method of Performance

Contracting arrangements are as follows: design, procurement and construction - fixed-price contract awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
a. Total project costs								
1. Total facility costs								
(a) Line item (Section 9.j.).	$ 0	$ 250	$ 300	$ 5,700	$ 4,400	$ 500	$ 150	$ 11,300
(b) Plant, Engineering and Design (PE&D).	0	0	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal).	$ 0	$ 250	$ 300	$ 5,700	$ 4,400	$ 500	$ 150	$ 11,300
2. Other project costs								
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	500	0	0	0	0	0	0	500
(c) Decontamination & Decommissioning (D&D).	0	0	0	0	0	0	0	0
(d) NEPA documentation costs	100	0	0	0	0	0	0	100
(e) Other project related costs	0	0	0	100	100	100	200	500
(f) Total other project costs	$ 600	$ 0	$ 0	$ 100	$ 100	$ 100	$ 200	$ 1,100
(g) Total project costs	$ 600	$ 250	$ 300	$ 5,800	$ 4,500	$ 600	$ 350	$ 12,400
(h) LESS: Non-Federal contribution	$ 0	0	0	0	0	0	0	0
(i) Net Federal total project cost.	$ 600	$ 250	$ 300	$ 5,800	$ 4,500	$ 600	$ 350	$ 12,400

b. Related annual costs (estimated life of project--25 years)	
1. Facility operating costs	$ 1,200
2. Facility maintenance and repair costs	100
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	100
7. Other costs	0
Total related annual costs.	$ 1,400

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1. Title and Location of Project: Sewage Treatment Quality Upgrade (STQU), Pantex Plant, Amarillo, Texas	2a. Project No.: 96-D-122 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item -- Narrative not required.
   (b) PE&D -- None.
   (c) Operating expense funded equipment -- None.
   (d) Inventories -- None.

The facility cost is the only direct cost related to this project. There are no operating expense funded equipment and no inventories associated with the project.

2. Other project costs
   (a) R&D necessary to complete construction -- None.
   (b) Conceptual design -- $500,000.
   (c) Decontamination and Decommissioning (D&D) -- None.
   (d) NEPA documentation -- $100,000.
   (e) Other project related funding -- Costs are engineering support for preoperational test, checkout and startup--$500,000.

b. Related annual costs

It is estimated that the facility will be used 25 years for its programmatic purpose.

1. Facility operating costs -- The major elements comprising the annual operating costs are for energy costs, labor costs, and operating costs of mechanical equipment. To operate the facility, fourteen operators on a one shift rotation will be required.
2. Facility maintenance and repair costs -- Routine maintenance will be completed by the Pantex Plant craftsmen. Maintenance and repair costs have been included.
3. Programmatic operating expenses directly related to the facility -- None.
4. Capital equipment not related to construction but related to the programmatic effort in the facility -- None.
5. GPP or other construction related to programmatic effort -- None.
6. Utility costs -- Estimated as shown.
7. Other Costs -- None.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Stockpile Management

1. Title and Location of Project: Retrofit HVAC and Chillers for Ozone Protection, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee

2a. Project No.: 96-D-123
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 1st Qtr. FY 1996

3b. A-E Work (Titles I and II) Duration: 8 months

4a. Date Physical Construction Starts: 1st Qtr. FY 1997

4b. Date Construction Ends: 4th Qtr. FY 1998

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $13,600
Total Project Cost (TPC) -- $14,500

6. Current Cost Estimate:
TEC -- $13,600
TPC -- $14,500

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1996	$ 3,100	$ 0	$ 3,100	$ 2,300
1997	7,000	0	7,000	5,200
1998	3,500	0	3,500	6,100

8. Project Description, Justification and Scope

This project will eliminate the use of "ozone depleting" chlorofluorocarbons (CFCs) currently used in the refrigeration and cooling systems at the Y-12 Plant, by replacing chillers and direct expansion (DX) air conditioners with new equipment and retrofitting existing chillers, DX units, and process coolers to operate on "ozone friendly" refrigerants. It will also upgrade the ventilation systems in chiller buildings and construct a small covered storage area to store CFC refrigerants removed from the affected chillers. This refrigerant will be stockpiled for future use.

FY 1997 funds will be used for design, procurement and construction activities.

After 1995 the refrigerant used in the existing chillers will not be manufactured. After refrigerant stockpiles are depleted, these chillers cannot operate, resulting in the loss of cooling in each and every building on the system. Government procurement guidelines prohibit stockpiling of refrigerant and caps are placed on the amount of refrigerant that can be procured.

The Retrofit HVAC and Chillers for Ozone Protection project will ensure that required comfort and process cooling continues in buildings at the Y-12 Plant. Most of the cooling in Y-12 is performed by central chilled water systems utilizing chillers that operate below atmospheric pressure. These chillers utilize automatic purge units to discharge moisture and air which enters the refrigerant circuit because of the low pressure. These purge units also discharge refrigerant while purging the moisture and air. Although these chillers will be retrofitted with new high-efficiency purge units that discharge less than one-half pound of refrigerant per pound of air (existing units purge 3 pounds of refrigerant per pound of air), they will still discharge refrigerant to the atmosphere during normal operation. This project is necessary to minimize atmospheric emissions and eliminate the use of ozone depleting CFCs to insure compliance with the EPA Stratospheric Ozone Protection Amendment of the Clean Air Act, the Montreal Protocol, the Department of Energy (DOE) Order 5400.1, General Environmental Protection Program, and Title 40 of the Federal

1. Title and Location of Project: Retrofit HVAC and Chillers for Ozone Protection, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee	2a. Project No.: 96-D-123 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Regulations. The project will also comply with the Presidential Executive Order 12856 for Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements of 1993, the National Pollution Prevention Act of 1990, and the National Energy Policy Act of 1992.

9. Detail of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management Costs		$ 2,160
(1) Engineering design and inspection costs at approximately 15 percent of construction (Item c)	$ 1,355	
(2) Construction management costs	320	
(3) Project management costs	485	
b. Land and land rights		0
c. Construction costs		9,125
1. Improvements to land	0	
2. Buildings	0	
3. Special equipment	0	
4. Utilities	9,125	
5. Demolition	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout, and acceptance		150
h. Subtotal (a through g)		$ 11,435
i. Contingencies at approximately 18.9 percent of above costs		2,165
j. Total line item cost (Section 11.a.1.(a))		$ 13,600 b/
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 13,600

10. Method of Performance

To the extent feasible engineering will be performed under a negotiated fixed-fee architect-engineer contract. To the extent feasible construction will be accomplished with a construction manager using fixed-price subcontractors. Advanced procurement of new chillers and air conditioners (long delivery items) will be by the construction manager.

a/ These estimates are based on a conceptual design completed November 1993.
b/ Applicable escalation rates are taken from the DOE Oak Ridge Operations escalation multipliers issued October 1993. The escalation rates were based on escalation of 3.4 percent in FY 1996 and 3.3 percent after FY 1996.

1. Title and Location of Project: Retrofit HVAC and Chillers for Ozone Protection, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee

2a. Project No.: 96-D-123
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 0	$ 2,300	$ 5,200	$ 6,100	$ 13,600
(b) PE&D	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 0	$ 2,300	$ 5,200	$ 6,100	$ 13,600
2. Other project costs						
(a) R&D necessary to complete project	0	0	0	0	0	0
(b) Conceptual design costs	195	0	0	0	0	195
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	5	0	0	0	0	5
(e) Other project related costs	40	200	190	135	135	700
(f) Start-up costs	0	0	0	0	0	0
(g) Total other project costs	$ 240	$ 200	$ 190	$ 135	$ 135	$ 900
(h) Total project costs	$ 240	$ 200	$ 2,490	$ 5,335	$ 6,235	$ 14,500
(i) LESS: Non-Federal contribution	0	0	0	0	0	0
(j) Net Federal total project costs (TPC)	$ 240	$ 200	$ 2,490	$ 5,335	$ 6,235	$ 14,500

b. Related annual costs (estimated life of project--25 to 40 years)	
1. Facility operating costs	$ 500
2. Facility maintenance and repair costs	600
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	950
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	4,600
7. Other costs	0
Total related annual costs	$ 6,650

1. Title and Location of Project: Retrofit HVAC and Chillers for Ozone Protection, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee	2a. Project No.: 96-D-123 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- Costs for the design, procurement, and construction to retrofit HVAC systems and chillers for ozone protection are estimated to be $13,600,000.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- None.
      (b) Conceptual design -- The conceptual design was completed November 1993 at a cost of $195,000.
      (c) Decontamination & Decommissioning (D&D) -- None.
      (d) NEPA documentation -- Cost of 1994 categorical exclusion (CX) preparation $5,000.
      (e) Other project related costs -- Engineering and operational support activities for Y-12 Plant functions during design and construction will cost approximately $700,000.
      (f) Start-up costs -- None.

b. Related annual costs
   1. Facility operating costs -- Includes utilities personnel 3 shifts are approximately $500,000.
   2. Facility maintenance and repair costs -- Keep chillers and HVAC equipment operational are approximately $600,000.
   3. Programmatic operating expenses directly related to facility materials (Programmatic Support) -- None.
   4. Capital equipment not related to construction but related to the programmatic effort in the facility -- Capital equipment to install high efficiency purge units and prevac heaters on existing chiller units will cost approximately $950,000. This equipment will reduce refrigerant leakage from existing chillers are an interim corrective action until line item is funded.
   5. GPP or other construction related to the programmatic effort in the facility -- None.
   6. Utility costs -- Electricity costs approximately $4,600,000 to operate the chillers and HVAC equipment.
   7. Other costs -- None.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES AND OTHER DEFENSE PROGRAMS
(Tabular dollars in thousands. Narrative material in whole dollars.)

Stockpile Management

1. Title and Location of Project: Sanitary Sewer Upgrade
Oak Ridge Y-12 Plant, Oak Ridge, Tennessee

2a. Project No.: 95-D-122
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 1st Qtr. FY 1995

3b. A-E Work (Titles I & II) Duration: 12 months

4a. Date Physical Construction Starts: 1st Qtr. FY 1996

4b. Date construction ends: 4th Qtr. FY 1998

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $26,300
Total Project Cost (TPC) -- $27,800

6. Current Cost Estimate:
TEC -- $26,300
TPC -- $27,800

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1995	$ 2,200	$ 0	$ 2,200	$ 505
1996	6,300	0	6,300	4,395
1997	10,900	0	10,900	12,800
1998	6,900	0	6,900	8,600

8. Project Description, Justification and Scope

This project will address upgrades to the existing Oak Ridge Y-12 Plant sanitary sewer system. The objective of the project is to repair known system deficiencies, which have resulted in outages and stoppages, sanitary waste water pollution entering the storm sewer system and East Fork Poplar Creek (EFPC), and a steadily increasing amount of surface water and ground water entering the sanitary system by inflow and infiltration. This project is infrastructure related and will be required regardless of the future missions at the Y-12 Plant. Upgrades will be comprised of (1) relining cracked pipe sections and joints, (2) replacing sewer pipe and joints too damaged for relining, (3) replacing the existing 8-inch-diameter outfall line on the west end with a 12-inch-diameter line, (4) rehabilitating deteriorated manholes by extending sealing manhole walls or by use of other repair approaches, (5) constructing a new pump station to replace an existing undersized pump station adjacent to an Material Access Area (MAA), (6) decommissioning a second existing pump station and installing an 18-inch-diameter outfall line to gravity drain flow from the western portion of the plant to the municipal system, and (7) removing cross-connections between the sanitary sewer system and storm sewer system.

FY 1997 funds will be used for design, procurement and construction activities.

The project is needed for several reasons. First, as a result of the present sanitary sewer system deficiencies (particularly blocked piping and pump station breakdowns), overflows of waste water periodically occur into Y-12 Plant building plumbing services, causing disruptions of operations in both radiological and nonradiological areas. This project will correct these deficiencies, thereby preventing the overflows and subsequent disruptions. Second, due to piping and manhole deficiencies, surface water and ground water enter the sanitary sewer system and is conveyed to the City of Oak Ridge treatment system. The entry of such waters into the system represents a noncompliance with the city's sewer use ordinance, which prohibits such discharges into the system. This project will prevent surface water and ground water inflows into the

1. Title and Location of Project: Sanitary Sewer Upgrade Oak Ridge Y-12 Plant, Oak Ridge, Tennessee (Continued)	2a. Project No.: 95-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

system by performing piping and manhole repairs. Third, cross-connections exist between the sanitary sewage system and storm sewer system, which results in pollution from the sanitary sewage system entering the storm sewer system and into EFPC. This unauthorized bypass of the sewage system into EFPC, which is in violation of the CWA, will be addressed in the project by the elimination of the cross-connections. Fourth, sanitary sewer lines, particularly those in the western half of the Y-12 Plant, are operating at their capacity and, hence, are inadequate to handle expected additional sanitary waste water flows from ongoing facility construction. The proposed sewer upgrade project will replace affected lines with larger piping to support the ongoing facility construction.

The scope of the project consists of repairing approximately 300 manholes, lining over 3,400 linear feet of existing vitrified clay lines, replacing approximately 8,500 linear feet of existing pipe, including replacing approximately 6,000 linear feet of existing 8-inch-diameter outfall line in the west end with new 12-inch-diameter line, decommissioning one pump station and relocating a second pump station, installing approximately 2,900 linear feet of pipe for the 18-inch-diameter outfall line, and eliminating cross-connections between the sanitary sewer system and storm sewer system.

9. Detail of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management Costs		$ 4,700
(1) Engineering design and inspection at approximately 14 percent of construction costs, (Item c)	$ 2,300	
(2) Construction management costs at approximately 9 percent of construction costs	1,500	
(3) Project management at approximately 5 percent of construction costs	900	
b. Land and land rights		0
c. Construction costs		16,500
1. Improvements to land	0	
2. Buildings	0	
3. Special equipment	0	
4. Utilities	16,500	
5. Demolition	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		200
h. Subtotal (a through g)		$21,400
i. Contingencies at approximately 22.9 percent of above costs		4,900
j. Total line item cost (Section 11.a.1.(a))		$26,300 b/
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$26,300

a/ These estimates are based on a conceptual design completed in February 1993.
b/ Applicable escalation rates are taken from the DOE Oak Ridge Field Office escalation multipliers issued October 1993. The escalation rates were based on escalation of 3.3 percent in FY 1995, 3.4 percent in FY 1996, and 3.3 percent in FY 1997, and 3.3 percent in FY 1998.

10. Method of Performance

To the extent feasible, engineering will be performed under a negotiated architect-engineer contract. To the extent feasible, construction and procurement will be accomplished with a construction manager using fixed-price subcontractors.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 505	$ 4,395	$ 12,800	$ 8,600	$ 26,300
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	$ 0	$ 505	$ 4,395	$ 12,800	$ 8,600	$ 26,300
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	480	0	0	0	0	480
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	25	0	0	0	0	25
(e) Other project related costs	920	0	25	25	25	995
(f) Total other project costs	$ 1,425	$ 0	$ 25	$ 25	$ 25	$ 1,500
(g) Total project costs (TPC)	$ 1,425	$ 505	$ 4,420	$ 12,825	$ 8,625	$ 27,800
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 1,425	$ 505	$ 4,420	$ 12,825	$ 8,625	$ 27,800

b. Related annual costs (estimated life of project -- 30 to 40 years)	
1. Facility operating costs	$ 150
2. Facility maintenance and repair costs	150
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 300

1. Title and Location of Project: Sanitary Sewer Upgrade Oak Ridge Y-12 Plant, Oak Ridge, Tennessee (Continued)	2a. Project No.: 95-D-122 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line Item -- Construction line item costs for the engineering design, procurement, demolition, and construction to replace the Y-12 sanitary sewer system are estimated to be $26,300,000.
   (b) PE&D -- None.
   (c) Operating expense funded equipment -- None.
   (d) Inventories -- None.

2. Other project costs
   (a) R&D necessary to complete construction -- None.
   (b) Conceptual design -- Approximately $480,000 were incurred to develop the scope of the project.
   (c) Decontamination and decommissioning (D&D) -- None.
   (d) NEPA documentation -- Approximately $25,000 were incurred to develop NEPA documentation.
   (e) Other project related funding -- Engineering and operational support activities for Y-12 Plant functions before and during design and construction of approximately $995,000.

b. Related annual costs

1. Facility operating costs -- Approximately $150,000 for facility operating costs.
2. Facility maintenance and repair costs -- Approximately $150,000 for maintenance and repair costs.
3. Programmatic operating expenses directly related to the facility -- None.
4. Capital equipment not related to construction but related to the programmatic effort in the facility -- None.
5. GPP or other construction related to the programmatic effort in the facility -- None.
6. Utility costs -- None.
7. Other costs -- None.

1. Title and Location of Project: Hydrogen Fluoride Supply System, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee	2a. Project No. 94-D-124 2b. Construction Funded

SIGNIFICANT CHANGES

- The construction start date was changed from 1st Qtr. FY 1995 to 4th Qtr. FY 1995 per BCP 64/HF-05. The reason for change is due to the delays in preparation and approval of the environmental documentation (Environmental Assessment and Finding of No Significant Impact) for the project.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Stockpile Management

1. Title and Location of Project: Hydrogen Fluoride Supply System, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee

2a. Project Number: 94-D-124
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design): 1st Qtr. FY 1994

3b. A-E Work (Titles I and II) Duration: 18 months

4a. Date Physical Construction Starts: 4th Qtr. FY 1995

4b. Date Construction Ends: 1st Qtr. FY 1999

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $26,300
Total Project Cost (TPC) -- $28,820

6. Current Cost Estimate:
TEC -- $26,300
TPC -- $28,820

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1994	$ 5,000	$ 0	$ 5,000	$ 813
1995	6,300	0	6,300	4,137
1996	8,700	0	8,700	8,750
1997	4,900	0	4,900	10,400
1998	1,400	0	1,400	2,000
1999	0	0	0	200

8. Project Description, Justification and Scope

The scope of this project is to provide replacement anhydrous fluoride (ANF) supply and fluidbeds facilities, both of which are part of the existing enriched uranium recycle and conversion facilities in the Oak Ridge Y-12 Plant. The hydrogen fluoride (HF) facility, fluidbeds, and reconfigured HF supply system will be located on the east side of 9212 building adjacent to the existing HF dock. This configuration will allow elimination of the documentation and demolition of existing 9812 building because of overlapping footprints between the proposed facility and the existing facility. The HF Facility will be enclosed in three process modules which will contain all potential HF releases. The replacement fluidbeds will be located in the east end of existing B-1 Wing of the 9212 building which will be remodeled for this function. The new HF supply system and the fluidbeds will be designed to be operated remotely as current technology permits.

The new HF system will include new hydrogen fluoride cylinder handling, vaporization and delivery piping systems, cylinder and vaporizer containment modules, automated control and leak detection system; and an HF pressure relief, fugitive emissions, and emergency release collection and treatment system module. ANF is one of the most acidic substances known and does not biodegrade when released in water, in air, or on land. It must be buffered, diluted, or reacted to reduce its acidity. Exposure to an air concentration of 30 parts per million can be immediately dangerous to life and health and, even in lower air concentration, can produce severe irritation to the eyes, skin, and respiratory system. HF will be received at the existing HF dock in vendor-owned cylinders and trucks. The fluidbeds facility, which converts

1. Title and Location of Project: Hydrogen Fluoride Supply System, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee (Continued)	2a. Project Number: 94-D-124 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

uranium oxide to fluoride, will include the installation of reduction and hydrofluorination fluidbed vessels, supporting facilities, vessel off-gas treatment system, transfer system, and process exhaust systems. The new HF supply system will utilize an existing dock on the east side of the existing enriched uranium recycle facility. This site is adjacent to the existing HF supply facility. The new facility will utilize existing HF treatment solution, (potassium hydroxide (KOH), storage tanks and their tanker stations. The new fluidbed system will be constructed in the east portion of building 9212 B-1 Wing. The project includes demolition of the existing area including a mezzanine, partitions, stairways, miscellaneous structures, and the resulting containerization and disposal of contaminated waste on a Y-12 Plant site interim waste storage pad.

Failure to complete this project will continue the risk of unacceptable HF exposures to the public, worker population, and the operators, with the latter bearing an additional risk of uranium particulate inhalation exposure. In addition, failure to fund this project would jeopardize continued operation of the HF supply and fluidbeds facilities, and, thereby, the only DOE complex highly enriched uranium conversion and recycle complex.

A major release of HF is the Y-12 Plant's greatest hazard, other than a nuclear criticality. The proposed new HF facility replaces an existing, essentially open-air cylinder unloading and vaporization dock which is operated in a "hands on" manner. The existing dock does not have fugitive and purging emission treatment capability, nor is it capable of dealing with a major release caused by a severe natural phenomena event. The new facility is required to sufficiently reduce the risk of an unacceptable exposure to the operator, the worker population, the public, and reduce the risk of an associated detrimental environmental impact.

The fluidbeds facility, where the HF is reacted with uranium oxide, was constructed more than 30 years ago. The age of this facility is making it increasingly difficult to maintain compliance with current and anticipated contamination control, safety, and regulatory requirements. The major improvements required can most efficiently be achieved by total replacement. Design features of the new facility will dramatically reduce the risk of HF and uranium particulate exposures to the operators. The proposed replacement facilities will assure the capability of highly enriched uranium metal production for the long term or until a totally new uranium weapons production capability (complex 21) can be constructed and is operable. (The replacement of these facilities would result in the entire uranium processing complex at Y-12 being for the most part either replaced or modernized.)

The highly enriched uranium chemical recovery and recycle process continues to be necessary and a unique Y-12 capacity to fulfill the following missions: (1) maintaining nuclear competence and providing requested specification grade uranium for weapons component fabrication and other special needs; (2) providing conversion capability of uranium salvage from retired weapons to alternate forms (such as metal or oxide) which are more readily accountable and allow safe storage from a health physics and criticality safety standpoint; (3) serving as a national repository for highly enriched uranium and, therefore, having the conversion capability to economic, safe, and accountable uranium forms for long-term storage.

FY 1997 funds will be used to complete the procurement of the modules, complete site preparation, demolition and modifications, and begin facility utility upgrades and support construction management and Title III inspection services.

1. Title and Location of Project: Hydrogen Fluoride Supply System, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee (Continued)

2a. Project Number: 94-D-124
2b. Construction Funded

9. Detail of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 5,360
(1) Engineering, design and inspection at approximately 30% of construction costs (Item c)	$ 4,870	
(2) Construction management costs	40	
(3) Project management at 3 percent of construction costs (Item c)	450	
b. Land and land rights		0
c. Construction costs		16,390
1. Improvements to land	$ 250	
2. Buildings	4,400	
3. Special equipment	11,380	
4. Utilities	0	
5. Other Structures	360	
6. Demolition	0	
d. Standard equipment	0	
e. Major computer items	0	
f. Removal cost less salvage	0	
g. Design and project liaison, testing, checkouts and acceptance		510
h. Subtotal (a through g)		$ 22,260
i. Contingencies at approximately 18.1 percent of above costs		4,040
j. Total line item cost (Section 11.a.1.(a))		$ 26,300
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 26,300

10. Method of Performance

Engineering will be performed under one negotiated architect-engineer contract (demolition and utilities and facility modifications) and Lockheed Martin Energy Systems (LMES) cost plus award fee (CPAF) contract for engineering of the special process flow sheets and module designs for the new systems. Construction of the new HF and fluidbed systems, including demolition activities, will be accomplished by the construction manager's direct-hire (CPAF) forces due to contamination and close proximity of fissile material access areas and ongoing operations. An interim storage pad for 8-25 boxes will be constructed by a fixed-price subcontractor.

1. Title and Location of Project: Hydrogen Fluoride Supply System, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee (Continued)

2a. Project Number: 94-D-124
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	Total
a. Total project costs							
1. Total facility costs							
(a) Line Item (Section 9.j.)	$ 813	$ 4,137	$ 8,750	$ 10,400	$ 2,000	$ 200	$ 26,300
(b) Plant, Engineering and Design	0	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal	$ 813	$ 4,137	$ 8,750	$ 10,400	$ 2,000	$ 200	$ 26,300
2. Other project costs							
(a) R&D necessary to complete project	0	0	0	0	0	0	0
(b) Conceptual design and Site characterization costs	375	0	0	0	0	0	375
(c) Design criteria costs	170	0	0	0	0	0	170
(d) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0	0
(e) Safety documentation costs	50	0	0	0	0	0	50
(f) NEPA documentation costs	50	0	0	0	0	0	50
(g) Other project related costs	635	240	250	375	190	185	1,875
(h) Total other project costs	$ 1,280	$ 240	$ 250	$ 375	$ 190	$ 185	$ 2,520
(i) Total project costs	$ 2,093	$ 4,377	$ 9,000	$ 10,775	$ 2,190	$ 385	$ 28,820
(j) LESS: Non-Federal contribution	0	0	0	0	0	0	0
(k) Net Federal total project cost (TPC)	$ 2,093	$ 4,377	$ 9,000	$ 10,775	$ 2,190	$ 385	$ 28,820

b. Related annual costs (estimated life of project--30 to 40 years)	
1. Facility operating costs	$ 20
2. Facility maintenance and repair	960
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 980

1. Title and Location of Project: Hydrogen Fluoride Supply System, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee (Continued)	2a. Project Number: 94-D-124 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line Item -- Costs for the Engineering Design, Procurement, Demolition, and Construction of the HF Supply System are Estimated at $26,300,000.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- Costs will not be required.
      (b) Conceptual design and Site characterization costs -- $375,000 have been incurred to develop the original scope of the project and to improve the project cost and schedule estimates.
      (c) Decontamination and Decommissioning (D&D) -- None.
      (d) Design criteria -- Approximately $170,000 will be expended.
      (e) Safety documentation costs -- Approximately $50,000 will be incurred to prepare safety analysis.
      (f) NEPA Documentation -- Approximately $50,000 will be expended.
      (g) Other project related funding -- Approximately $1,875,000 will be expended. It is broken out as follows: Plant Support for duration of project, $800,000; Startup Operations, $585,000; and Feasibility Study, Systems Requirement, Value Engineering, $445,000. Site Characterization, $45,000.

b. Related annual costs (estimated life of project--30 years)

   1. Facility operating costs -- The utilities, maintenance and materials, and associated overhead for facility operating costs will cost approximately $20,000 annually.
   2. Facility maintenance and repair costs -- The annual costs for direct labor, materials and supplies, and associated overhead for maintenance and repair activity are estimated to cost approximately $960,000.
   3. Programmatic operating expenses directly related to the facility -- None.
   4. Capital equipment not related to construction but related to the programmatic effort in the facility -- None.
   5. GPP or other construction related to the programmatic effort in the facility -- None.
   6. Utility costs -- None.
   7. Other Costs -- None.

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1. Title and Location of Project: Upgrade Life Safety, Kansas City Plant, Kansas City, Missouri

2a. Project No: 94-D-125
2b. Construction Funded

3a. Date A-E Work Initiated: 2nd Qtr. FY 1994

3b. A-E Work (Titles I and II) Duration: 31 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $14,700
Total Project Cost (TPC) -- $16,000

4a. Date Physical Construction Starts: 4th Qtr. FY 1995

4b. Date Construction Ends: 4th Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $14,700
TPC -- $16,000

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1994	$ 1,000	$ 0	$ 1,000	$ 16
1995	1,000	0	1,000	813
1996	5,500	0	5,500	4,271
1997	5,200	0	5,200	6,600
1998	2,000	0	2,000	3,000

8. Project Description, Justification and Scope

The Main Manufacturing Building and the Electrical Products Manufacturing Building of the Kansas City Plant (KCP) include approximately 2.3 million square feet and have an occupancy of approximately 4,000 personnel. This project is necessary to meet the intent of DOE Order 5480.7A, "Fire Protection," DOE Order 6430.1B, "General Design Criteria," and National Fire Protection Association (NFPA) 101, "Life Safety Code" standards. Among the upgrades that this project will provide are fire-rated separations which create exit enclosures in the main manufacturing and office buildings to allow personnel to safely evacuate the premises in case of a fire or other emergency. Modifications to existing walls and penetrations are included to provide fire-rated separations between office floors. Construction of horizontal exits and protected paths of travel to meet the required number of exits for office and factory personnel, and construction of fire-rated enclosures through the front office building to the outside are included. The project also includes modifications and upgrades to air handling units and ducts that provide air to exit passageways for the factory floor and in the basement. Further, this project will provide the necessary construction to upgrade existing walls and penetrations to meet the required fire-resistance rating for horizontal exits.

FY 1997 funds will be used for design, procurement and construction activities.

1. Title and Location of Project, Upgrade Life Safety, Kansas City Plant, Kansas City, Missouri (Continued)	2a. Project No: 94-D-125 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The project will consist of the following work elements:

1. Direct Exterior Exits
2. Additional Exit Capacity
3. Exits Within 250 Feet Travel Distance
4. Second Exit
5. Upgrade Second Exit
6. Eliminate Dead End Corridors
7. Upgrade Existing Exit Enclosures
8. Exit Smoke Protection
9. Unobstructed Exit Access
10. Vertical Opening Protection
11. Upgrade Horizontal Exits
12. 50 percent Exits - First Floor Discharge
13. Redundant Sprinkler Supply
14. Plenum Sprinklers
15. Separate Hose Reels

Deficiencies in life safety enclosures, exits, and air handling systems have been identified within the KCP main offices, manufacturing plant, and basement areas during the past several years. The lack of fire-rated separations and excessive travel distance to an exit from areas in the main facility per NFPA 101, Life Safety Code, 1991 Edition, Section 5-6, have been identified. Many deficiencies have been corrected as individual construction projects were completed; however, some aisle separations, exits, and air handling upgrades still require completion in areas where construction projects are not anticipated; therefore, this stand-alone project has been identified to correct these deficiencies.

Fire-rated separation for aisles needed as exit enclosures is necessary to meet the intent of DOE Order 5480.7A, "Fire Protection," DOE Order 6430.1B, "General Design Criteria," NFPA 101, "Life Safety Code," and Uniform Building Code (Chapter 33). Presently, air conditioning systems in the basement utilize exit enclosures for air supply and exhaust. Under a fire condition, this arrangement would allow smoke to enter the exit enclosure and prevent the enclosure from being used as an exit. Exit enclosures from which escape is to be made must be provided with fire-resistance-rated walls, floors, doors, or other means to provide occupants a protected path to the exterior of the building. Exit enclosures are not to be used as part of an air supply, return, or exhaust system serving other areas of the building. NFPA 101 and OSHA (Title 29, Part 1910) requirements are not met by existing conditions. Loss of life could result without appropriate protection. This project will provide the necessary construction to meet the intent of DOE Orders 5480.7A and 6430.1B that no fire will result in threats to the public health or in undue exposure of personnel. The July 1991 Headquarters Life Safety Appraisal recommends completion of the improvements of this project.

This project is in accordance with current mission needs, and is being coordinated with the Nonnuclear Reconfiguration project.

1. Title and Location of Project, Upgrade Life Safety, Kansas City Plant, Kansas City, Missouri (Continued)	2a. Project No: 94-D-125 2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 1,485
(1) Engineering design and inspection at approximately 10.8 percent of construction costs, item c (Design, Drawings, and Specifications)	$ 1,155	
(2) Construction management costs	115	
(3) Project management at 2 percent of construction costs	215	
b. Land and land rights	0	
c. Construction costs		10,740
1. Improvements to land	0	
2. Buildings	9,015	
3. Special equipment	1,725	
4. Utilities	0	
5. Demolition	0	
d. Standard equipment		470
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 12,695
i. Contingencies at approximately 15.8 percent of above costs		2,005
j. Total line item cost (Section 11.a.1.(a))		$ 14,700
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 14,700

10. Method of Performance

Design and inspection will be performed under KCP negotiated architect-engineer contracts. Construction will be by fixed-price contracts awarded after competitive proposals and administered by the KCP.

1. Title and Location of Project, Upgrade Life Safety, Kansas City Plant, Kansas City, Missouri (Continued)

2a. Project No: 94-D-125
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 16	$ 813	$ 4,271	$ 6,600	$ 3,000	$ 14,700
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Expense funded equipment	0	0	0	0	0	0
(d) Inventories	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Total facility cost (Federal and Non-Federal)	$ 16	$ 813	$ 4,271	$ 6,600	$ 3,000	$ 14,700
2. Other project costs						
(a) R&D necessary to complete project	0	0	0	0	0	0
(b) Conceptual design costs	100	0	0	0	0	100
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project related costs	320	220	220	220	220	1,200
(f) Total other project costs	$ 420	$ 220	$ 220	$ 220	$ 220	$ 1,300
(g) Total project costs	$ 436	$ 1,033	$ 4,491	$ 6,820	$ 3,220	$ 16,000
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 436	$ 1,033	$ 4,491	$ 6,820	$ 3,220	$ 16,000

b. Related annual costs	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual funding	$ 0

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item -- construction line item costs for design, procurement, and construction at approximately $14,700,000.
(b) PE&D -- None.
(c) Operating expense funded equipment -- None.
(d) Inventories -- None.

2. Other project costs
(a) R&D necessary to complete construction -- None.
(b) Conceptual design -- A conceptual design report was completed in October 1991 at an estimated preparation cost of $100,000.
(c) Decontamination & Decommissioning (D&D) -- No narrative required.
(d) NEPA documentation -- No narrative required.
(e) Other project related funding -- Approximately $1,200,000 will be expended to develop appropriate documentation.

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1. Title and Location of Project: Emergency Notification System Pantex Plant, Amarillo, Texas	2a. Project No. 94-D-127 2b. Construction Funded

SIGNIFICANT CHANGES

- The pocket pagers were deleted from this project in BCP AL95001 because the requirement was met by other means at the site.
- The start and completion dates were changed by BCP AL95001 because of a delay in awarding the A/E contract. The A/E contractor took more time than scheduled to obtain appropriate security clearances for workers.
- There was no change to the TEC or TPC because of increased cost for ED&I.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Stockpile Management

1. Title and Location of Project: Emergency Notification System
Pantex Plant, Amarillo, Texas

2a. Project No: 94-D-127
2b. Construction Funded

3a. Date A-E Work Initiated: 4th Qtr. FY 1994

3b. A-E Work (Titles I and II) Duration: 31 months

5. Previous Cost Estimates:
Total Estimated Cost (TEC) -- $6,200
Total Project Cost (TPC) -- $6,400

4a. Date Physical Construction Starts: 4th Qtr. FY 1995

4b. Date Construction Ends: 4th Qtr. FY 1998

6. Current cost estimate:
TEC -- $6,200
TPC -- $6,400

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1994	$ 1,000	$ 0	$ 1,000	$ 0
1995	1,000	0	1,000	302
1996	2,000	0	2,000	2,798
1997	2,200	0	2,200	2,400
1998	0	0	0	700

8. Project Description, Justification and Scope

This project consists of the design and installation of an Emergency Preparedness Notification System (EPNS) which replaces headend amplifiers and associated equipment, remote amplifiers and public address (PA) speakers located throughout the Pantex Plant, and upgrading of the audio integrity of the PA System throughout the Plant. EPNS will also upgrade the outdated Outdoor Warning System (OWS).

Both the primary and the backup frontend amplifiers will be replaced with state-of-the-art PA system amplifiers with the capability for voice, music or prerecorded message inputs and automatic switchover from one amplifier to the other in case of failure. The prerecorded emergency messages can then be transmitted to plant personnel in the event of an accident. The emergency prerecorded messages could also be utilized to provide emergency instructions and keep plant personnel informed while emergency personnel in the Emergency Operations Center (EOC) prepare to deal with the crisis.

The existing 10 power amplifiers located around the plant will be replaced and additional amplifiers are anticipated to power additional PA speakers. Additional PA speakers will be installed throughout the Plant and most of the existing speakers will be replaced to improve the tonal quality and area coverage. Much of the existing wiring will be replaced, both for the low level signal to the power amplifiers and from the power amplifiers to the speakers.

The audio integrity of the current PA system is substandard. If an announcement is made by a person who speaks softly into the telephone, the audio output to the speakers is low and may not be heard. On the other hand, if the announcer speaks loudly into the telephone, the speakers are driven hard and will either be too loud for the coverage area or garbled and not understandable. The new system will automatically adjust

1. Title and Location of Project: Emergency Notification System Pantex Plant, Amarillo, Texas (Continued)	2a. Project No: 94-D-127 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

and equalize the input level. Also, acoustical treatments may need to be installed in several areas of the operating facilities. Evaluation will be made during design to determine the extent of acoustical modifications to be performed.

The OWS currently consists of one centrally located siren which is not audible to all areas of the Plant. It will be replaced with omnidirectional sirens located throughout the Plant and will include the appropriate power, remote controllers and a central station controller.

There are no security and safeguards related items in this project; however, there would be direct benefits to security in a crisis.

The PA system is the only means of mass communications at the Pantex Plant and is essential to notify Plant employees and visiting personnel of impending and/or existing emergency situations. It is utilized to inform and distribute supplemental information after activation of the Plant's emergency evacuation alarms. Announcements made on the PA system include: suspension of assembly/disassembly operations involving static sensitive electro-explosive components during active lightning conditions or the threat of lightning; emergency announcements concerning explosions, fire, radiation release, and severe weather such as tornadoes, hail, high winds, blizzard conditions, etc.; building evacuations for fire and radiation drills; suspension of outside operations involving explosives such as the firing sites and burning grounds; security exercises and actual emergencies; and the Emergency Operation Center exercises. It is also used for signaling personnel to start and stop work. It is imperative that employees and visiting personnel be kept apprised of emergency conditions and that they are notified immediately of the need for evacuation and what Plant buildings/areas to avoid during the evacuation. A storm in 1989 removed the roof from one of the temporary office trailers resulting in damage to personal vehicles and the building's contents. One employee was in the trailer at the time and was unaware of the storm situation due to the inability to hear the emergency notification. The present system does not allow compliance with Pantex Emergency Preparedness Procedures (EPP) 1001 Manual "Pantex Plant Personal Accountability Procedures" for personnel accountability; or EPP 1002 Manual "Pantex Plant Emergency Notification Procedures, Vol 1, and EPP 1003 Manual "Pantex Plant Emergency Notification Procedures, Vol II, for recall of Emergency Cadre personnel, as directed by the DOE 5500 series of orders.

The PA system is the primary method of notification and serves as the "Employee Alarm System" as prescribed by the Occupational Safety and Health Act (OSHA).

The original PA system was installed in 1952 and upgraded in 1971 to a battery-operated remote power amplifier system. The PA system was upgraded again in 1983 to add zone paging, which was accomplish through the existing telephone exchange equipment. No additional remote power amplifiers were added with the installation of zone paging. The original headend amplifier and associated equipment will be over twenty years old in 1992. In addition, many of the parts for the original headend amplifier are obsolete and no longer available. This makes repair of the amplifier almost impossible. A backup headend amplifier is located in the Computer Center Building in another part of the Plant. In the event the main headend amplifier fails and cannot be repaired, the backup amplifier can be connected to the PA system, but even this addition does not guarantee the PA system will remain operational over the coming years. The new solid state headend amplifier will replace the original amplifiers. With the implementation of this project, automatic switchover equipment will be installed to switch from the main headend amplifier to the backup headend amplifier in the event the main amplifier should fail.

Replacement cabling is required between Zones 11 and 12, the Development and Production Zones, and some replacement cable is required within the operating buildings. In addition to the partial replacement of existing cabling, the existing cabling needs to be documented as to cable routing and cable pairs used to transmit the PA signal to the speakers.

The equipment to equalize the input level and compress the frequency of the input signal will give each amplifier the same input level and frequency range, so that the amplifiers will output the same audio level and frequency range to all the paging speakers. During the Plant-wide survey, acoustical evaluations will be necessary in some operating areas as well as the adjustment of individual speakers to an optimum

1. Title and Location of Project: Emergency Notification System Pantex Plant, Amarillo, Texas (Continued)	2a. Project No: 94-D-127 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

output level for the area served. The ability to understand announcements in some processing areas is greatly hampered by the high reverberation characteristics. An economic analysis will determine the optimum of acoustical treatments and speaker level/coverage.

The OWS primary use is for emergency notification of Plant personnel of severe weather warnings (tornado, thunderstorm) and civil defense occurrences such as attacks upon the USA. The existing single OWS siren was installed in the early 1950s and has outlived its useful life. The central wiring has experienced numerous faults which have caused false alerts and general disregard for its use. Due to facility expansions in the last 30 plus years and modern facility construction techniques utilizing earth covered, heavy concrete construction, and energy efficient materials, many areas of the Plant's production and outlying areas do not have adequate coverage or are not covered by the PA system.

The project is scoped to provide voice annunciation of emergency situations by PA for personnel in ramps, buildings, or offices. The OWS is to get the attention of all Plant personnel for weather, "civil defense" situations, or alert them to contact their supervisor.

The FY 1997 funding will be used for completion of Title III engineering services and construction.

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 1,115
(1) Engineering design and inspection at approximately 14.3 percent of construction costs, Item c (Design, Drawings, and Specifications)	$ 565	
(2) Construction management costs	110	
(3) Project management at 11 percent of construction costs	440	
b. Land and land rights		0
c. Construction costs		3,935
1. Improvements to land	$ 0	
2. Buildings	3,110	
3. Special equipment	330	
4. Utilities	495	
5. Demolition	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 5,050
i. Contingencies at approximately 22.8 percent of above costs		1,150
j. Total line item cost (Section 11.a.1.(a))		$ 6,200
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 6,200

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10. Method of Performance

The project is to be accomplished as follows:

a. The design services (Titles I, II, and partial Title III) will be accomplished by an outside A-E firm under a fixed-price, lump-sum contract that will be administered by the Department of Energy (DOE) or the Operating Contractor (Mason & Hanger-Silas Mason Co., Inc.).
b. The construction services of this project will be performed by a "Q" cleared outside construction contractor operating under a fixed-price, lump-sum contract to be awarded on the basis of competitive bids. This contract may be administered by DOE, Corps of Engineers (USACE) or the Operating Contractor.
c. Construction Management Services may be performed by the Corps of Engineers, DOE, Operating Contractor or by a construction management firm under contract to DOE or the Operating Contractor.
d. Final connections for specific communications equipment will be accomplished by the operating contractor. All equipment not specified to be procured and/or installed by the construction contractor will be procured and/or installed by the operating contractor (Mason & Hanger-Silas Mason Co., Inc.).

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 302	$ 2,798	$ 2,400	$ 700	$ 6,200
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 0	$ 302	$ 2,798	$ 2,400	$ 700	$ 6,200
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	50	0	0	0	0	50
(c) Design criteria	50	0	0	0	0	50
(d) Start up costs	0	0	0	0	100	100
(e) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(f) NEPA documentation	0	0	0	0	0	0
(g) Other project related costs	0	0	0	0	0	0
(h) Total other project costs	$ 100	$ 0	$ 0	$ 0	$ 100	$ 200
(i) Total project costs	$ 100	$ 302	$ 2,798	$ 2,400	$ 800	$ 6,400
(j) LESS: Non-Federal contribution	0	0	0	0	0	0
(k) Net Federal total project cost (TPC)	$ 100	$ 302	$ 2,798	$ 2,400	$ 800	$ 6,400

b. Related annual costs (estimated life of project--15 years)	
1. Facility operating costs	$ 50/Yr
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 50/Yr

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1. Title and Location of Project: Emergency Notification System Pantex Plant, Amarillo, Texas (Continued)	2a. Project No: 94-D-127 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line Item -- Estimated to be $6,200,000.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete project -- None.
      (b) Conceptual design -- Estimated to be $50,000.
      (c) Design criteria -- Estimated to be $50,000.
      (d) Start up costs -- Estimated to be $100,000.
      (e) Decontamination & Decommissioning (D&D) -- None.
      (f) NEPA documentation -- None.
      (g) Other project related costs -- None.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Stockpile Management

1. Title and Location of Project: Environmental Safety and Health Analytical Laboratory Pantex Plant, Amarillo, Texas	2a. Project No. 94-D-128 2b. Construction Funded

SIGNIFICANT CHANGES

- No funding requested for FY 1997 because the project is on hold pending the results of an ongoing Inspector General audit.

1. Title and Location of Project: Environmental Safety and Health Analytical Laboratory
Pantex Plant, Amarillo, Texas

2a. Project No.: 94-D-128
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 2nd Qtr. FY 1994

3b. A-E Work (Titles I and II) Duration: 19 months

4a. Date Physical Construction Starts: 1st Qtr. FY 1996

4b. Date Construction Ends: TBD

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $8,800
Total Project Cost (TPC) -- $9,250

6. Current Cost Estimate:
TEC -- $8,800
TPC -- $9,250

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1994	$ 800	$ 0	$ 800	$ 4
1995	1,000	0	1,000	548
1996	4,000	0	4,000	0
1997	0	0	0	3,748
1998	3,000	0	3,000	4,500

8. Project Description, Justification and Scope

This project provides for the design and construction of a new Environmental Safety and Health Analytical Laboratory (ESHAL). The proposed facility will replace and upgrade the capabilities of the existing chemistry laboratory which is outdated and ill-equipped to serve the needs and responsibilities of chemical analysis for plant materials. The facility will: (a) provide chemical analysis of plant materials and conduct surveillance evaluations on commercially procured weapons materials; and (b) provide environmental testing laboratories which will allow for the onsite testing of environmental samples applicable to the Resource Conservation and Recovery Act (RCRA) and the Environmental Protection Agency (EPA). Instrumentation and equipment will be provided to maintain and extend plant capabilities with respect to expected future accuracies and precision.

FY 1997 funding is not requested because the project is on hold pending the results of an ongoing Inspector General (IG) audit. If the project is cancelled as a result of the IG audit, the project will be closed out and all remaining funds deobligated. If the project is approved for continuation, funding will be requested for FY 1998. In either case, a Baseline Change Proposal (BCP) will be prepared to document the changes.

The site for the new facility is in the explosive development Zone 11 of the Pantex Plant and has been coordinated with the Pantex Site Development Plan. The building will be located northeast of and adjacent to the existing Weapons Material Development Analytical Laboratory in an effort to consolidate laboratory functions at Pantex Plant. An enclosed connecting ramp will tie this new facility to the existing laboratory. This will allow for shared access, including access to new analytical equipment and utilization of common areas such as the shower/change rooms.

1. Title and Location of Project: Environmental Safety and Health Analytical Laboratory
Pantex Plant, Amarillo, Texas (Continued)

2a. Project No.: 94-D-128
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The ESHAL will be a single story structure with approximately 16,400 gross square feet (13,000 net square feet). The facility will be configured into operational areas and support areas based on function and relationship of activities. Separate interior rooms will be provided for mechanical equipment and electrical equipment. All operational areas of the laboratory will have an overall positive pressure provided by the mechanical systems.

The design of this facility will be in accordance with the DOE Explosives Safety Manual (DOE/EV/06194-4) and DOE Order 6430.1A for Class II operations and laboratory scale explosive operations (less than 500 grams). High explosives design load limits will be 25 pounds hardened area, but handling of individual containers will be limited to less than 500 grams.

The ESHAL is projected to have a full-time staff of 20, working a straight daytime shift, Monday through Friday.

A major portion of the site work will consist of grading, paving (roads and parking), utility and storm drainage work. Utilities to be connected to this facility include water (fire and domestic), steam, sewer and electricity. Fire alarm, communication, mechanical and electrical systems will also be provided for building operations. Conditioned electrical power will be supplied for designated analytical equipment. Special ventilation will be provided for the chemical staging area and dust collectors will be supplied for the ventilation system in the explosives area. Each laboratory will have individual temperature control.

An area is provided in the facility for the staging of chemicals to be used throughout the facility. This area will contain ventilation systems, fire protection systems, secondary containment systems and emergency shower and eyewash in accordance with applicable provisions of DOE Order 6430.1A, National Fire Protection Act 30 (NFPA), and the Occupational Safety and Health Act (OSHA)/Texas Administrative code.

Environmental Considerations: All emissions from this facility will meet the requirements of the State of Texas, the Clean Air Act, Clean Water Act and the RCRA. The project will be managed to ensure continued compliance with the provisions and requirements of the Texas Air Control Board and the Texas Water Commission (TWC). Accommodation sites for laboratory generated contaminated waste will be designed in accordance with TWC and EPA requirements. Equipment installation will comply with all required operational safety requirements.

Safety Considerations: The building will be sited a distance greater than or equal to a minimum inhabited building distance from other explosive buildings in accordance with DOE Explosive Safety Manual DOE/EV/06194-4. Fire protection will be provided by a wet-pipe automatic sprinkler system throughout the building. Automatic and manual fire alarms will transmit digital electronic coded signals to the fire station via the Plant Fire Alarm System.

Security Considerations: Protection of classified matter in the facility will comply with DOE Order 5632.5. Unclassified computer systems will comply with DOE Order 1360.2B and classified computer systems will comply with DOE Order 5639.6.

Demolition of the existing laboratory facility, three support facilities and two connecting ramps are included in this project. (Buildings 12-8, 12-38, 12-59, 12-59E, 12-R-8, and 12-R-59). A Solid Waste Management Unit (SWMU) has been identified next to the existing laboratory, but does not impact construction of the ESHAL. An identified SWMU in the vicinity of the proposed site for the new laboratory should be a sufficient distance from the site so as not to impact construction of the ESHAL. However, the Corps of Engineers will continue an assessment of the area and any environmental issues which may evolve will be addressed.

Between April 1988 and October 1989, four audits were performed on the existing laboratory facility. These audits consisted of a Pantex Industrial Safety Department audit, a Pantex Fire Department audit, Pantex's Environmental Safety and Health Staff audit, and the DOE/HQ Tiger Team Environmental Safety and Health Assessment. The major finding was several instances of incompatible chemical staging. Presently, crowding in the chemical staging area of the current laboratory precludes adequate segregation recommended for laboratories and is not in conformance with 40 CFR 264.175.

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1. Title and Location of Project: Environmental Safety and Health Analytical Laboratory Pantex Plant, Amarillo, Texas (Continued)	2a. Project No.: 94-D-128 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Additional liquid-effluent sampling was initiated as a result of draft Section 3008(h) of the Administrative Order of Consent to Pantex Plant, issued by EPA Region 6 on September 7, 1989. One of the interim measures contained within the final terms of the Order drives the sampling of discharges from three operating buildings. The effluent sampling program has been expanded beyond the regulatory requirements under DOE Order 5400.1 which requires the following:

- verification of compliance with Federal, State and local effluent regulations and DOE Orders
- determination of compliance with commitments
- evaluation of the effectiveness of effluent treatment and control
- identification of potential environmental problems
- support of permit revision and/or reissuance
- detection, characterization, and reporting unplanned releases

The DOE Amarillo Area Office Notice AAO-93-1 (dated 10-14-92) re: "Protection of Plant Employees, the Public, and Environment" defines the policies and expectations for Environmental Protection where the operating contractor is expected to conduct a comprehensive environmental monitoring program that will provide early warning of any environmental upset condition. This program must also provide high quality, validated environmental data to meet reporting and assessment needs of the DOE, the Environmental Protection Agency (EPA), State regulatory agencies, and the public."

The present chemical laboratory performs some analyses for the current environmental monitoring plan, but does not have enough work space or sufficient sample staging areas to serve the needs for today or the increasing needs of the future. In recent years, a combination of new instrumentation and increased workload has had several impacts on the effectiveness of the current laboratory. First, the increased equipment has reduced the bench space by over 70 percent from 1400 square fee to 400 square feet. This reduction has forced crowding on the remaining bench space. In addition, the increased equipment has created problems with temperature and environmental controls in the laboratories which make it impossible in some cases to meet the rigid specifications called out by the design laboratories.

In addition to environmental monitoring, containerized hazardous waste must be analyzed for "knowledge of its contents" and for documentation on the transportation manifest in accordance with 40 CFR 262. Offsite laboratories are presently used to analyze most environmental and waste samples. However, these laboratories cannot respond quickly to our needs since up to thirty days are normally required for analytical results.

Onsite analytical capability will allow a rapid turn-around time for waste, soil, and water samples. Also, Pantex procedural and quality assurance recommendations have been made and accepted by the Texas Air Control Board. Additionally, an offsite laboratory which can analyze water or soil for the most common explosive used at the plant does not exist. The Pantex Plant has eighty waste streams which are characterized completely once a year in an effort to reclassify streams which may have a reduced number of cumulative wastes. This waste management activity is in addition to the analyses required for each containerized waste shipment that is tested for the specific hazard(s) at hand. Finally, stringent DOE auditing criteria are in place on site but limited at offsite laboratories.

The scope of the project includes the current analytical chemistry support for weapons and plant activities and the testing of facility discharges, playas, ground water, and ditches. The scope also includes analytical chemistry support for containerized waste and annual characterization of waste streams. Analyses in support of environmental monitoring and waste management will be conducted in the ESH&L in addition to analytical work currently performed in the chemical laboratory.

As a consequence of the proposed laboratory, all chemical functions (including quality control, compatibility, and process labs) will be consolidated to one location at the plant site.

1. Title and Location of Project: Environmental Safety and Health Analytical Laboratory
Pantex Plant, Amarillo, Texas (Continued)

2a. Project No.: 94-D-128
2b. Construction Funded

9. Detail of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 1,855
1. Engineering design and inspection at approximately 24.0 percent of construction (Item c)	$ 959	
2. Construction management	391	
3. Project management	505	
b. Land and land rights		0
c. Construction costs		3,930
1. Improvements to land	135	
2. Buildings ($212/square foot)	3,490	
3. Special equipment	0	
4. Utilities	305	
5. Demolition	0	
d. Standard Equipment		1,480
e. Major computer items		0
f. Removal cost less salvage		355
g. Design and project liaison, testing, checkout, and acceptance		0
h. Subtotal (a through g)		$ 7,620
i. Contingency at approximately 15.5 percent of above costs.		1,180
j. Total line item cost (Section 11.a.1.(a))		$ 8,800
k. LESS: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 8,800

10. Method of Performance

The design services (Titles I, II, and partial Title III) will be accomplished by an outside A-E firm and will be administered by DOE or the Operating Contractor (Mason & Hanger-Silas Co., Inc.).

The construction services of this project will be performed by an outside construction contractor operating under a fixed-price, lump-sum contract to be awarded on the basis of competitive bids. This contract will be administered by DOE, Corps of Engineers (COE) or the Operating Contractor.

Construction Management Services will be performed by the COE, DOE, Operating Contractor or by a construction management firm under contract to DOE or the Operating Contractor.

Final connections for new fire alarms and specific communication equipment will be accomplished by the Operating Contractor.

Furniture and non-engineered equipment will be procured separate from the building construction activities.

1. Title and Location of Project: Environmental Safety and Health Analytical Laboratory
Pantex Plant, Amarillo, Texas (Continued)

2a. Project No.: 94-D-128
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 4	$ 548	$ 0	$ 3,748	$ 4,500	$ 8,800
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
Total facility cost	$ 4	$ 548	$ 0	$ 3,748	$ 4,500	$ 8,800
2. Other project costs						
(a) R&D necessary to complete project	0	0	0	0	0	0
(b) Conceptual design costs	120	0	0	0	0	120
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	150	0	0	0	0	150
(e) Design criteria costs	50	0	0	0	0	50
(f) Start-up costs	0	0	0	0	130	130
(g) Total other project costs	$ 320	$ 0	$ 0	$ 0	$ 130	$ 450
(h) Total project costs	$ 324	$ 548	$ 0	$ 3,748	$ 4,630	$ 9,250
(i) LESS: Non-Federal contribution	0	0	0	0	0	0
(j) Net Federal total project cost (TPC)	$ 324	$ 548	$ 0	$ 3,748	$ 4,630	$ 9,250

b. Related annual costs (estimated life of project--25 years)	
1. Facility operating costs	$ 100
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	100
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 200

1. Title and Location of Project: Environmental Safety and Health Analytical Laboratory Pantex Plant, Amarillo, Texas (Continued)	2a. Project No.: 94-D-128 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line Item -- Narrative not required.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete project -- None.
      (b) Conceptual design -- Estimated to cost $120,000.
      (c) Decontamination & Decommissioning (D&D) -- None.
      (d) NEPA documentation -- $150,000--EA approved 7/95.
      (e) Design criteria costs -- Preparation of the design criteria is estimated to cost $50,000.
      (f) Start-up costs -- Estimated to cost $130,000.

b. Related annual costs
   1. Facility operating costs -- $100,000 (includes maintenance, janitorial and utility services (includes materials and supplies related to maintenance).
   2. Facility maintenance and repair costs -- None.
   3. Programmatic operating expenses directly related to facility materials (Programmatic Support) -- $100,000 (includes materials, supplies and miscellaneous equipment related to facility operation (programmatic support).
   4. Capital equipment not related to construction but related to programmatic effort of the facility -- None.
   5. GPP or other construction related to the programmatic effort -- None.
   6. Utility costs -- None.
   7. Other costs -- None.

1. Title and Location of Project: Life Safety Upgrades, Y-12 Plant, Oak Ridge, Tennessee

2a. Project No.: 93-D-122
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 1st Qtr. FY 1993

3b. A-E Work (Titles I & II) Duration: 36 months

4a. Date Physical Construction Starts: 3rd Qtr. FY 1994

4b. Date Construction Ends: 4th Qtr. FY 1998

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $29,200
Total Project Cost (TPC) -- $30,320

6. Current Cost Estimate:
TEC -- $29,200
TPC -- $30,320

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1993	$ 2,700	$ 0	$ 2,700	$ 625
1994	5,000	0	5,000	1,683
1995	5,000	0	5,000	5,838
1996	7,200	0	7,200	10,254
1997	7,200	0	7,200	5,800
1998	2,100	0	2,100	5,000

8. Project Description, Justification and Scope

The purpose of this project is to begin to bring the Y-12 Plant into compliance with NFPA codes, as required by OSHA and by DOE orders such as 5480.7. The project is part of a program to bring the plant into compliance. The items to be corrected by this project have been identified by internal audits, technical safety appraisals, and tiger team audits. Additional items identified but not included in this project will be prioritized, estimated, and (1) included in a future project or (2) added to this project in a future year if adequate funds are available.

This project will provide upgrading and modernization of fire protection systems, electrical equipment, mechanical systems, and emergency electrical generators which provide power for critical life safety systems. This project is part of a program which is intended to upgrade the Y-12 Plant's compliance with National Fire Protection Association (NFPA) codes relating to life safety. The extent of this project will address in excess of 200 buildings at the Y-12 plant.

The project will provide improvements to life safety in a number of areas, such as fire protection sprinklers, fire doors and walls, smoke detectors, fire alarms, emergency electrical generators, and mechanical systems. The fire protection sprinkler improvements will involve the addition of sprinklers to areas which are not covered or modifications to existing sprinkler systems to correct conditions which are in conflict with national codes. The project will install fire doors and install or upgrade fire walls to provide adequate fire separation of emergency egress paths. Smoke detection systems will be provided for life safety exits. The existing fire alarm systems will be upgraded or replaced to comply fully with current codes. Approximately 16 existing emergency generators and their controls, which supply power to life safety systems such as evacuation alarms, criticality alarms, and fire alarms, will be replaced with modern equipment.

1. Title and Location of Project: Life Safety Upgrades, Y-12 Plant, Oak Ridge, Tennessee (Continued)	2a. Project No.: 93-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

FY 1997 funding is for construction and construction management.

9. Detail of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 6,850
(1) Engineering, design and inspection at approximately 25 percent of construction costs, Item c	$ 4,050	
(2) Construction management costs	1,300	
(3) Project management at approximately 9 percent of construction costs (Item c)	1,500	
b. Land and Land Rights		0
c. Construction Costs		16,400
1. Improvement to land	0	
2. Building	13,650	
3. Special equipment	1,300	
4. Utilities	1,450	
5. Demolition	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		100
Subtotal (a through g)		$ 23,350
h. Contingencies at approximately 25 percent of above costs		5,850
i. Total line item cost (Section 11.a.1.(a))		$ 29,200
j. LESS: Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$ 29,200

10. Method of Performance

Facility Manager will provide engineering and procurement services for the new fire alarm and detection system. Engineering on the remaining subprojects will be performed under a negotiated fixed-price architect-engineer contract. To the extent feasible construction and procurement will be accomplished with a construction manager using fixed-price subcontractors.

1. Title and Location of Project: Life Safety Upgrades, Y-12 Plant, Oak Ridge, Tennessee (Continued)

2a. Project No.: 93-D-122
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total Project Funding						
1. Total facility costs						
(a) Line Item (Section 9.j.)	$ 2,308	$ 5,838	$ 10,254	$ 5,800	$ 5,000	$ 29,200
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 2,308	$ 5,838	$ 10,254	$ 5,800	$ 5,000	$ 29,200
2. Other project costs						
(a) R&D necessary to complete project	0	0	0	0	0	0
(b) Conceptual design cost	230	0	0	0	0	230
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(d) Site characterization	100	0	0	0	0	100
(e) NEPA documentation costs	20	0	0	0	0	20
(f) Other project related costs	550	50	50	60	60	770
(g) Total other project costs	$ 900	$ 50	$ 50	$ 60	$ 60	$ 1,120
(h) Total project costs	$ 3,208	$ 5,888	$ 10,304	$ 5,860	$ 5,060	$ 30,320
(i) LESS: Non-Federal contribution	0	0	0	0	0	0
(k) Net Federal total project cost (TPC)	$ 3,208	$ 5,888	$ 10,304	$ 5,860	$ 5,060	$ 30,320

b. Related annual costs	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 0

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1. Title and Location of Project: Life Safety Upgrades, Y-12 Plant, Oak Ridge, Tennessee (Continued)	2a. Project No.: 93-D-122 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- Construction line item costs for the engineering design, procurement, demolition, and construction are estimated to be $29,200,000.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- None.
      (b) Conceptual design -- Approximately $230,000 were incurred to develop the scope of the project.
      (c) Decontamination & Decommissioning (D&D) -- None.
      (d) Site characterization -- Approximately $100,000 will be incurred to perform site characterization activities
      (e) NEPA documentation -- Approximately $20,000 was incurred for NEPA documentation development.
      (f) Other project related funding -- Engineering and operational support activities for Y-12 Plant functions before and during design and construction is estimated to cost approximately $770,000.

b. Related annual costs -- None.

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No.: 88-D-122 2b. Construction Funded

SIGNIFICANT CHANGES

- The TEC for this project decreased from $424,253,000 to $405,174,000 and TPC decreased from $472,653,000 to $452,074,000 which is a compilation of subtracting the TEC and TPC of completed, canceled, scope changes, reprogramming of excess funds.
- Subprojects canceled as a result of new mission requirements.
  - 92-32 - Tritium Shipping Container Facility - SR
- Subprojects added for FY 1997
  - 97-42 - Hydraulic Press - Y-12 Plant

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations

2a. Project No. 88-D-122
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1988

3b. A-E Work (Titles I & II) Duration: Ongoing

4a. Date Physical Construction Starts: 2nd Qtr. FY 1988

4b. Date Construction Ends: Ongoing

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $424,253
Total Project Cost (TPC) -- $472,653

6. Current Cost Estimate:
TEC -- $405,174
TPC -- $452,074

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1988	$ 15,400	$ 0	$ 15,400	$ 3,399
1989	79,341	0	77,492	18,512
1990	83,099	11,119 a/	94,821	46,774
1991	106,806	0	107,158	59,490
1992	47,473	0	9,829	38,569
1993	87,100	-63,967 b/	13,934	32,738
1994	27,100 c/	-47,618 c/	25,161	40,946
1995	14,820	-6,000 d/	8,226	33,733
1996	8,660	-6,069 e/	5,243	59,414
1997	21,940	0	21,940	45,080
1998	25,970	0	25,970	20,271
1999	0	0	0	6,248

a/ Reflects the sequestration of funds for FY 1990 (-$1,246,000) and the FY 1990 omnibus reprogramming approved by appropriations subcommittee ($12,365,000).

b/ FY 1992 reprogramming, approved in FY 1993, provided funding $5,000,000 for subproject 92-32. $68,967,000 was withdrawn from FCAP for the FY 1994 budget reduction and reprogrammed to Reconfiguration. This resulted in a net adjustment of $63,967,000.

c/ The FY 1994 appropriation request has been reduced from $27,100,000 to $21,100,000 reflecting the expected reapplication of prior year funds ($6,000,000) from GPD-121. $23,903,000 of prior year appropriation credit transferred to EM in FY 1994 with the four Rocky Flats subprojects. Also cancellation of 90-17 and 91-23 for FY 1995 Amendment of $24,118,000, reduction of 89-12 of $244,000 and 91-27 of $653,000, and addition to 91-30 of $1,300,000.

d/ Cancellation of subprojects 91-23, $1,100,000 and 92-32, $4,900,000 provided funding for the FY 1996 Amendment for project 92-D-126, Tritium Loading Modifications, SR.

e/ Cancellation of subproject 90-17, $2,699,100; downscoped subproject 94-37, $1,000,000; and subproject 93-35 delayed and under review, $2,370,000; provided funding for FY 1996 offset.

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope

The TEC for this project decreased from $424,253,000 to $405,174,000 and TPC decreased from $472,653,000 to $452,074,000 which is a compilation of subtracting the TEC and TPC of completed, canceled, scope changes, reprogramming actions.

The downscoping, cancellation and the disposition of funds withdrawn from several subprojects are detailed in the narrative of each subproject within this data sheet. In accordance with the FCAP plan/charter part of the uncommitted funds from completed and canceled projects have been reconciled and applied to other ongoing FCAP subprojects to reduce out-year mortgages. These actions have been accomplished utilizing the baseline change control process.

The Facilities Capability Assurance Program (FCAP) is a continuing initiative of the Nuclear Weapons Stockpile Support Complex (NWSSC) intended to actively address and manage the continuing deterioration of the Complex's aging infrastructure. The Complex has in excess of 14.3 million square feet in buildings, of which 8.97 million square feet were built in the 1940s and 1950s (56.1 percent). The primary utility systems were designed and built during these same time frames. The estimated value of these facilities (buildings and utilities) in FY 1988 dollars exceeds $8.2 billion (based on parametric evaluation escalated to FY 1988 dollars which is significantly less than actual replacement costs). An overall "investment strategy" has been developed through this line item to assure that current and future requirements and capabilities of the Department of Energy to meet national security missions does not erode as the Complexes' infrastructure continues to age and deteriorate from use. FCAP utilities an objective process to identify each project for inclusion into the line item and prioritized each project to optimize the allocation of limited capital resources. Each project is further reviewed, approved, and prioritized by the Capital Assets Management Program (CAMP).

The infrastructure deterioration problem was first addressed in the Restoration Program for production equipment, facilities, and utilities. FCAP has been developed as a follow-on program after Restoration by addressing long term solutions for: (a) correcting aging and failed utility systems; (b) correcting energy inefficiencies; (c) reduce high maintenance facilities costs; (d) improving and correcting safety and health conditions in work places; and (e) adjustment of facilities to meet current and future mission needs within the DOE complex.

FCAP was designed to maintain, repair, or replace aging and deteriorated facilities within the DOE Weapons Complex to meet current and future mission requirements with an ongoing program and maintain programmatic continuity. FCAP uses several lessons learned from Restoration as its basis, such as identifying problems through appraisals, then managing resources and priorities based on a projectable level of funding, and using those funds for a defined list of projects. These features have been adapted to the larger, more complex arena of facilities renovation, modernization, and replacement.

Key elements of FCAP as a program are as follows:

- Periodic appraisals are required for all facilities on each site. The appraisals identify deficiencies related to poor physical condition or to the facility's functional inadequacy to meet current program requirements. Deficiencies found are segregated into categories depending on the size of the problem, the most appropriate funding source, and their relative priorities. Subprojects are then scoped for budget consideration.

- Subprojects proposed for FCAP must meet certain guidelines before being included in the FCAP line item. They are included only if (a) they meet the FCAP poor-condition/functionally-inadequate criteria; (b) the Weapons Complex has a projected long term need for that facility in order to meet mission requirements; and (c) the justification is primarily based on current known mission requirements (as opposed to new initiatives or capabilities that should stand on their own).

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

- Each subproject included in FCAP's line item will be managed separately within the bounds specified in the construction project data sheet. As such, the construction project data sheet will constitute FCAP's "control list" of subprojects and FCAP's funding request will include funds necessary for both prior year mortgages and budget year new start requirements.

FCAP's purpose is to maintain the infrastructure within the weapons complex and meet current and projected mission needs in support of DOE objectives outlined by the President. FCAP does this by replacing obsolete and inadequate facilities as required to maintain programmatic continuity. All subprojects are justified and prioritized based on these long term programmatic impacts. Many secondary benefits are also gained from these replacements; especially, ES&H, Safeguards and Security, and DOE Order Compliance.

Attaining proper funding levels (originally targeted for $150 million per year) is essential to FCAP's success. When FCAP is adequately funded, replacements will be done in programmatic priority order, with additional benefits going to the ES&H areas. If FCAP is not adequately funded, work-arounds will have to be found for the facilities impacted, postponing both the programmatic and the ES&H gains until the ES&H concerns become the prime driver and the project becomes an urgently needed ES&H line item. This defeats the purpose of FCAP and doe snot enhance the long range goals of DOE's overall program objectives.

The following is a brief description and justification for each of the subprojects proposed for FY 1996 FCAP funding. Each subproject has gone through a validation and mission justification process and is included here because it is needed in order to maintain the Complex's capability to meet its current mission. FY 1997 funding requirements are noted in each subprojects funding profile.

FY 1988 Projects

Subproject 88-01: Weapons Special Purpose Bay Replacement Complex, Pantex Plant, Amarillo, Texas

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$30,000	$30,000	$0	$0	$0	$0	Subproject Completed

Subproject 88-02: Weapons Production Primary Standards Lab, Sandia National Laboratory, Albuquerque, New Mexico

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$17,700	$17,700	$0	$0	$0	$0	Subproject Completed

Contractor claims are currently being resolved. A Baseline Change Control will be processed and the schedule will be adjusted accordingly.

8. Project Description, Justification and Scope (Continued)

Subproject 88-03: Electrical Distribution System Replacement and Upgrade, Rocky Flats Plant, Golden Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$0	$0	$0	$0	$0	$0	Transferred to EM

Subproject 88-04: Replace Wooden Buildings, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$10,750	$10,750	$0	$0	$0	$0	Subproject Completed

Final closeout procedures have been initiated.

Subproject 88-05: Renovate Power Supply Distribution System, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$7,458	$7,458	$0	$0	$0	$0	Subproject Completed

Subproject 88-06: Restore Condensed Water System, Kansas City Plant, Kansas City, Missouri

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$1,722	$1,722	$0	$0	$0	$0	Subproject Completed

Subproject 88-07: Roof Replacements, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$5,840	$5,840	$0	$0	$0	$0	Subproject Completed

Subproject 88-08: Replace HVAC and Process Cooling System, Mound Plant, Miamisburg, Ohio

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$7,083	$7,083	$0	$0	$0	$0	Subproject Completed

Subproject 88-09: HVAC Replacements, Pinellas Plant, Clearwater, Florida

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$2,930	$2,932	$-2	$0	$0	$0	Subproject Completed

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Subproject 88-10: Replace Air Handling Unit and HVAC, Kansas City Plant, Kansas City, Missouri

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$3,080	$3,080	$0	$0	$0	$0	Subproject Completed

FY 1989 Projects

Subproject 89-11: Lithium Process Replacement, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$54,533	$54,533	$0	$0	$0	$0	1st Qtr FY 1989 - 3rd Qtr FY 1996

Subproject 89-12: Nuclear Facilities Modernization, Mound Plant, Miamisburg, Ohio

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$7,056	$7,056	$0	$0	$0	$0	1st Qtr FY 1989 - 3rd Qtr FY 1996

This subproject was directed to be canceled and closed-out by ASDP in February, 1992, in response to the Nuclear Weapons Reduction Initiative. Two sub-tasks within this project, "Hot Side Chilled Water System" and "Replacement of two PCB Transformers" were approved for completion because these two sub-tasks are required regardless of the completion of the major subproject.

Subproject 89-13: Replace Microminiature Electronics, Kansas City Plant, Kansas City, Missouri

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$29,100	$29,100	$0	$0	$0	$0	1st Qtr FY 1989 - 1st Qtr FY 1997

This subproject will replace the existing microminiature electronics assembly facility at the Kansas City Plant (KCP) by constructing new facilities within the main manufacturing building and relocating current operations. The new facility will total approximately 31,000 square feet of usable production area on the factory floor plus approximately 23,500 square feet of equipment platforms and utility tunnels (basement). The new facility will provide capability and capacity for the development and production of thin-film and thick-film networks for hybrid microcircuits (HMC); this HMC production facility is the only one of its type within the nuclear weapons production complex. The existing cleanroom facility has exceeded its normal life expectancy, is losing its capability to maintain cleanliness at the Class 10,000 control level, and is several generations behind modern cleanroom technology making it technologically obsolete. Existing manufacturing processes used in the production of thin-film and thick-film electronics requires Class 100 cleanliness, 5 to 50 Hertz vibration control, and more stringent control of temperature and humidity. Currently, when the dust count exceeds the maximum allowed, production operations are suspended until control is regained by repairing equipment and manual wipe-down of cleanroom surfaces. Production interruption times range from a few hours to several days, during which production material and assemblies must be stored in closed containers and nitrogen pressurized storage cabinets.

8. Project Description, Justification and Scope (Continued)

Subproject 89-14: Replace Deionized Water System, Pinellas Plant, Clearwater, Florida

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$8,271	$8,271	$0	$0	$0	$0	Subproject Completed

Subproject 89-15: Change House Replacement, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$13,500	$13,500	$0	$0	$0	$0	Subproject Completed

The purpose of this subproject is to replace or refurbish functionally and physically inadequate change house facilities. Implementation of this project will reduce operating costs by demolishing high maintenance, obsolete facilities; by providing cost effective contamination control design; and by consolidation of smaller change houses.

Approximately 45,000 square feet of new facilities will be constructed of structural steel framing and reinforced concrete with the exterior skin consisting of prefinished metal panels and masonry. Mechanical heating and ventilating systems will also be provided. In addition, 11,000 square feet of existing change house space will be renovated to meet current regulations. This will allow the demolition of 66,000 square feet of wooden buildings (9723-1, 9723-18, 9723-19, and 9723-21) and the decommissioning of 17,000 square feet of change house space.

The existing wooden change houses to be replaced by this project were built in 1943/1944. While routine maintenance has kept them marginally acceptable, it is uneconomical to modernize or otherwise restore these buildings. Building structural and framing systems have deteriorated due to termite infestation. Mechanical and electrical systems are inadequate and out of compliance with various codes and standards.

FY 1990 Projects

Subproject 90-16: Building Electrical Rehabilitation, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$0	$0	$0	$0	$0	$0	Transferred to EM

Subproject 90-17: Production Plating Shop Replacement, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$9,660	$22,400	$-6,000	$-8,740	$0	$0	Subproject Canceled

Final closeout and paperwork has been initiated.

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8. Project Description, Justification and Scope (Continued)

This subproject has been canceled as a result of new mission requirements. The changes to the TEC and funding profile were accomplished through the Baseline Change Control process. FY 1995 reduction of $4,000 was used to reduce outyear mortgage on project 92-31.

Subproject 90-18: In-Process Plutonium Staging Vault, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$2,070	$2,070	$0	$0	$0	$0	Subproject Canceled

This project has been canceled in response to the Nuclear Weapons Reduction Initiative.

Subproject 90-19: Support Office Building, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$3	$3	$0	$0	$0	$0	Subproject Canceled

This project has been canceled in response to the Nuclear Weapons Reduction Initiative.

Subproject 90-20: West Area Expansion, Rock Flats Plant, Golden, Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$0	$0	$0	$0	$0	$0	Subproject Canceled

This project has been canceled in response to the Nuclear Weapons Reduction Initiative.

Subproject 90-21: Contractor Support Facility, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$0	$0	$0	$0	$0	$0	Subproject Canceled

This project has been canceled in response to the Nuclear Weapons Reduction Initiative.

FY 1991 Projects

Subproject 91-22: Replace Electrical System Components, Kansas City Plant, Kansas City, Missouri

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$12,700	$12,700	$0	$0	$0	$0	1st Qtr FY 1991 - 3rd Qtr FY 1996

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations

2a. Project No. 88-D-122
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

This subproject will replace significant portions of the 40+ year old electrical power distribution system in the Kansas City Plant. Major portions of the existing electrical power distribution system were installed in 1942 and have reached the end of their design lives. The current electrical system's reliability is deteriorating due to its age and replacement is essential to continued production at this plant.

This distribution system provides electrical service to over 2,000,000 square feet of the plant's 3,200,000 square feet of floor space. Also, the obsolete design of the existing electrical substations includes integral transformers and switch units; system reliability is greatly reduced by this design because any switch or transformer malfunction could require the entire unit be removed and replaced, an operation which requires approximately six months. This would require costly and cumbersome work-arounds to maintain production in the affected areas.

The major portion of this subproject will replace components in substations ranging in size from 200 to 2,500 KVA. Specific components to be replaced include approximately 44 integral transformer and primary switch units and approximately 18 switchgear units. The power feeder cable, which will also be replaced, includes approximately 17,000 ft. of 15 KV cable and approximately 12,000 ft. of associated cable tray. The existing oil-filled transformers will be replaced with dry type transformers. All switchgear units will have electronic controls with fault detection to allow precise clearing of electrical faults which are the major cause of electrical fires. Existing non-fused cable selector air switches and oil switches will be replaced with new fusible, single cable air switches with current limiting fuses to provide short circuit protection. The existing wooden cable tray will be replaced with a metal tray, eliminating a potential fire hazard.

Other replacements include approximately 600 feet of bus duct, approximately 48 lighting and power panels, circuit breakers in approximately 120 panel boards, two outside overhead power lines, and two 28 year old emergency generators.

Subproject 91-23: High Explosive Formulation Facility, Pantex Plant, Amarillo, Texas

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$1,963	$3,920	$-1,957	$0	$0	$0	Subproject Canceled

This subproject has been canceled as a result of new mission requirements. Closeout procedures are underway to determine final funds expended. The $1,100,000 was withdrawn per the FY 1996 amendment and $857,000 transferred to subproject 94-38.

Subproject 91-24: Renovate Water Supply System, Pantex Plant, Amarillo, Texas

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$9,500	$9,500	$0	$0	$0	$0	1st Qtr FY 1991 - 1st Qtr FY 1996

This subproject will replace the primary water storage reservoir facility, substantially renovate the Zone 11 and 12 fire protection water system, and replace four inadequate wells. The present system does not provide adequate fire protection water supplies to 68 buildings in Pantex's Production and Development Zones (Zones 11 and 12, respectively) due to age of the key components and present system configuration. These areas deal extensively with high explosives and the fire protection supplies must be able to provide deluge water to any fire, quick, to protect critical production buildings.

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1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Subproject 91-25: Central Steam Plant Renovation, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$0	$0	$0	$0	$0	$0	Transferred to EM

Subproject 91-26: Replace Graphite Dust Collection System, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$361	$361	$0	$0	$0	$0	Subproject Canceled

This project has been canceled in response to the Nuclear Weapons Reduction Initiative.

Subproject 91-27: Refurbishment Power Supply/Distribution System, Phase II, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$54,597	$33,947	$5,400	$1,100	$2,950	$11,200	1st Qtr FY 1991 - 4th Qtr FY 1999

This project will refurbish the Y-12 electrical power supply/distribution system by: (1) restoring Elza I switchyard (the primary 161-Kv switchyard for Y-12 Plant); (2) refurbish electrical power control system (161-and 13.8-Kv); and (3) refurbish the secondary distribution system. These refurbishments must be done to provide the necessary reliability and maintainability required for weapons production at the Y-12 Plant and (4) consolidate switchgear from Building 9201.4.

FY 1997 funds ($2,950) will be used for Title I and Title II design for the electrical switch gear consolidation.

Subproject 91-28: Site Electrical Replacements and Substation, Mound Plant, Miamisburg, Ohio

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$770	$770	$0	$0	$0	$0	Subproject Canceled

This project has been canceled in response to the Nuclear Weapons Reduction Initiative.

Subproject 91-29: Replace Temperature and Humidity Conditioning Systems, Kansas City Plant, Kansas City, Missouri

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$27,927	$32,477	$-4,550	$0	$0	$0	1st Qtr FY 1991 - 4th Qtr FY 1996

A Baseline Change Control was approved to reduce the TEC by $4,550,000. The $4,550,000 was transferred to project 95-40 to fully fund the project. The $4,550,000 was made available by value engineering studies and favorable bids.

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

This subproject will replace or restore the temperature and humidity control utility systems at the Kansas City Plant (KCP). Manufacturing operations at KCP rely heavily on stringent temperature and humidity controls to maintain close tolerances in mechanical and electronic weapons components. Approximately 90 percent of KCP's 3.2 million sq. ft. of floor space is temperature controlled at 74 degrees Fahrenheit +/- 7 degrees, and approximately 20 percent of KCP's floor space is humidity controlled to 50 percent relative humidity maximum. The systems being replaced and upgraded have exceeded their useful life expectancies and are no longer functionally adequate to maintain these internal environment requirements during normal external winter (i.e., 2 degrees F) and summer conditions (i.e., 99+ degrees F with 70+ percent RH).

Subproject 91-30: Central Fire Station Emergency Operations Center, Pantex Plant, Amarillo, Texas

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$8,000	$8,000	$0	$0	$0	$0	2nd Qtr FY 1994 - 2nd Qtr FY 1996

This subproject will design and construct a new Central Fire Station to replace inadequate, overcrowded facilities for the fire department's present operations. It will also replace current Emergency Operations Center (EOC) facilities with adequate facilities that comply with current DOE requirements. Since many of the support facilities for the EOC (e.g., kitchen, sleeping area, exercise area, showers, and emergency communication and power) are basic requirements for the fire department, it is cost effective to combine these two functions into a common facility.

The building will be a single story structure of approximately 25,300 gross square feet. The EOC and joint use areas, approximately 12,400 square feet, will be hardened for security and tornado protection. The fire station area, approximately 12,900 square feet, will be conventional construction. This building will be located inside the security area of the north end of Zone 12 at Pantex Plant, Amarillo, Texas. Parking and staging areas for emergency vehicles and road access will be provided.

FY 1992 Projects

Subproject 92-31: Replace/Refurbish Deteriorated Elevators, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$10,920	$2,220	$4,000	$2,200	$2,500	$0	1st Qtr FY 1992 - 2nd Qtr FY 1998

A Baseline Change Control was approved to transfer $4,000,000 of FY 1995 funds from canceled subproject 90-17 to this subproject. The FY 1997 requirement was reduced by the same amount to leave the TEC the same. This internal FCAP transfer of funds is within the FCAP charter and does not effect the overall FCAP TEC.

This subproject will replace or refurbish elevators in the production/production support buildings. These elevators are a primary and necessary means for transporting weapons-related materials and assemblies from one manufacturing area to another within the production/production support buildings. These 1940 vintage elevators are presently unreliable and interrupt the flow of manufactured components when inoperative. Significant maintenance and the fabrication of unavailable, obsolete parts are required to keep the elevators operational.

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations

2a. Project No. 88-D-122
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The elevators in the Y-12 Plant have been in service since the 1940's and 1950's and are deteriorating with age and use. This project will replace elevators which are physically deteriorated and functionally inadequate to move weapons components within the production buildings. These elevators require extensive repair and preventative maintenance and pose a potential safety threat to personnel. Many of the older elevators do not meet current elevator standards, and the capacity of some of the elevators have been downgraded for safety reasons. The reduction in load capacity requires "work arounds" to maintain production which, in turn, delays production and introduces additional safety problems.

This subproject is a phase repair/replacement effort. As guidance is received at Oak Ridge from DOE/HQ for downsizing activities, Oak Ridge evaluates the Y-12 site requirements and determines which facilities will remain active and that in turn determines which elevators require refurbishment. This course of action reduces the possibility of refurbishing an elevator in a facility determined to be decommissioned.

The alternative to upgrading and/or replacing the existing elevators as proposed is to continue maintaining and repairing the elevators until they have to be shut down. This is unacceptable due to the increased safety and security risk incurred to move weapon parts and production personnel between floors.

The FY 1997 funds ($2,500,000) will be used to continue the repairing/replacement of elevators determined to be required to meet current mission requirements.

Subproject 92-32: Tritium Shipping Container Facility, Savannah River Site, Aiken, South Carolina

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$100	$5,000	$-4,900	$0	$0	$0	Subproject Canceled

This subproject has been canceled because of mission changes. The appropriated amount of $4,900,000 was removed from this project and placed in the FY 1996 amendment, for Project 96-D-126, Tritium Loading Line Modifications, SR.

FY 1993 Projects

Subproject 93-33: Plutonium Facilities HVAC Restoration, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$0	$0	$0	$0	$0	$0	Transferred to EM

Subproject 93-34: Replace Deteriorated Facilities, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$0	$0	$0	$0	$0	$0	Subproject Canceled

This subproject has been canceled in response to the Nuclear Weapons Reduction Initiative.

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Subproject 93-35: Upgrade Materials Engineering Laboratory, Kansas City Plant, Kansas City, Missouri

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$13,200	$5,200	$160	$0	$2,470	$5,370	1st Qtr FY 1996 - 4th Qtr FY 1997

This subproject will upgrade the Materials Engineering Laboratory capabilities at the Kansas City Plant (KCP). Based on a Value Engineering Study, current mission guidance, and downsizing activities at KCP the location of this project is recommended to be changed from renovating and adding a 2-story prefabricated building at the North Wing Laboratory Building 86 to renovating space within the Manufacturing Support Building (MSB), Building 13. The mission and requirements for this project have been revalidated and rejustified and are required for current mission activities. A Baseline Change Control was approved which changed the subprojects location and schedule.

The new Materials Engineering Laboratory will be constructed in approximately 24,500 square feet of existing space in the Manufacturing Support Building (MSB), Building 13. This location will co-locate the laboratory with the existing Analytical Science Laboratory in the MSB, offering efficiencies and synergy through common staffing and equipment. Upon completion of the new laboratory in the MSB, the existing laboratory in Building 86 will be vacated, returning Building 86 to an open high bay space available for other uses. Contaminated exhaust ductwork and fans, asbestos, containing materials and excess equipment, furnishings, and associated utilities in the old laboratory area will be removed following the laboratory relocation to the new facility location.

The new laboratory facility will be designed to meet the requirements of the National Fire Protection Association (NFPA) 45 - Fire Protection for Laboratories Using Chemicals and will combine the two laboratory office areas and rearrange the existing materials engineering laboratory into separate areas by type and function. A new chemical storage room with perimeter exhaust and curbing is included. Interior structures, and systems/components will be installed in accordance with the latest DOE orders, Uniform Building Code, and the Sheet Metal and Air Conditioning Contractors National Association (SMANCNA) recommendations for general use facilities.

The Materials Engineering Laboratory is needed to evaluate material properties and to develop material fabrication processes. These activities are necessary to solve production process problems, certify production materials, evaluate the hazardous properties of materials for possible personnel safety or environmental pollution effects, and develop new materials and processes for weapon production. The existing laboratories have been in use since 1964 with few improvements and many added processes. The laboratories suffer from severe overcrowding as the result of continued expansion and addition of evaluation processes without additional space. Many process and material evaluations cannot be done simultaneously because the close proximity of areas and the incompatibility of process activities and/or materials. This upgrading must be accomplished to meet current safety (OSHA) regulations on a fixed basis instead of the current administrative control arrangement.

Subproject on hold pending Programmatic Environmental Impact Statement decision and the FY 1996 funding used for the FY 1996 budget offset.

Subproject 93-36: Investment Casting Furnace Facility, Sandia National Laboratories, Albuquerque, New Mexico

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$3,660	$3,660	$0	$0	$0	$0	4th Qtr FY 1994 - 4th Qtr FY 1995

The facility will add approximately 6,000 sq.ft.of high bay space to the Liquid Metal Processing Laboratory of Building 6630 within the AREA III perimeter security. The high bay will provide space for a new casting furnace and its ancillary equipment, a closed-loop cooling system and a motor control center, relocated existing equipment, and a bridge crane. Environmental and electrical control systems will be provided to meet laboratory requirements.

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

This subproject will provide safe, efficient investment casting processing and significantly reduce the congestion of the remainder of the melting and solidification laboratory. Over the past several years, the need for supporting the DOE Weapons Complex by the development of investment casting and the preparation of prototype investment castings has increased markedly, due, in part, to the reduced cost of cast component housings (50% to 90% reduction). Recently, all of the development fireset housings for the W89 were cast in this laboratory. Downsizing of the weapons complex increases the need for a cost-effective, rapid-prototyping method of producing investment castings for current and future weapons systems. Sandia has been identified as the probable source of investment castings to the weapons complex. This new facility will provide vital technology toward production of these castings on a timely basis.

FY 1994 Projects

Subproject 94-37: Chilled Water System Replacement, Kansas City Plant, Kansas City, Missouri

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$9,600	$3,200	$5,500	$-2,000	$0	$2,900	2nd Qtr FY 1995 - 3rd Qtr FY 1996

This subproject will provide a new Central Chilled Water Plant in an existing building centrally located on the north wall of the Main Manufacturing Building. Two chillers currently located in the East Boilerhouse and two chillers currently located in the West Boilerhouse will be removed and replaced with five new 1,200-ton chillers and associated pumps, piping, and controls installed in the new Chilled Water Plant. The new Central Chilled Water plant will include space for one additional 1,200-ton chiller. Cooling towers, condenser water pumps and electrical substations will be installed outside, adjacent to the building. A direct digital control system will be installed and connected to the East and West Boilerhouse for monitoring and coordination with the plant's chilled water system.Additionally, this project will replace six 20-ton, two 10-ton, and one 15-ton direct expansion (DX) air conditioning units with four new air handling units and one 15-ton DX unit with a new DX unit. The new air handling units will occupy the same locations as the old units, where possible, or will be installed on roof-mounted platforms requiring new chilled water and steam utility piping and duct modifications. Existing control systems will be replaced with direct digital control systems.

Chilled water is the only source of cooling for the plant's air conditioning system. Chilled water is used extensively to maintain temperature and humidity conditions in production areas having precise control requirements and also in all other factory and office space. Chilled water is currently generated in the East and West Boilerhouses and distributed throughout the plant. Both boilerhouses are fully occupied by chillers and other equipment supplying utility services such as steam and compressed air to the plant with no available space for additional chillers, or any other boilerhouse equipment additions.

Subproject downscoped.

Subproject 94-38 Roads and Parking Area Upgrades, Pantex Plant, Amarillo, Texas

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$13,300	$1,400	$3,859	$8,041	$0	$0	3rd Qtr FY 1995 - 1st Qtr. FY 1998

This subproject is to repair, replace, and upgrade approximately 25 miles of roads, approximately 36,500 square yards of parking areas and associated equipment at the Pantex Plant. These roads and equipment have exceeded their expected serviceable life by up to 25 years, and are significantly deteriorated.

8. Project Description, Justification and Scope (Continued)

Transportation requirements at Pantex Plant have altered significantly in the 45 years since the Plant was constructed. Many of the existing roads were constructed with 18-foot pavement width or less to carry two-way traffic, which is much too narrow by today's standards. Changing production, security and fire protection requirements, increased volume of traffic, and increased size and weight of vehicles since the plant was constructed have all contributed to the inadequacy of existing roads at the Pantex Plant. Now that many of the roads have surpassed their serviceable lives and must be reconstructed, the road and parking areas should be located so as to optimize plant operations. This project will provide a long range traffic plan as a necessary part of the design. Signage and pavement marking on Pantex Plant roads and parking areas are not consistent. Part of the design process for this project will be to adapt the recommendations and requirements of the Department of Transportation "Manual on Uniform Traffic Control Devices" to the requirements of the Plant.

Normal bituminous concrete pavings are designed for a finite structural design period, normally 20 years for highway class pavings or something less for light duty pavings such as some access roads and parking lots. The structural design period is the estimated number of years that a paving is expected to carry the design traffic volume before reaching the minimum serviceability level. Surface maintenance and/or overlays may be required for a pavement to achieve this serviceable life, but any benefit from pavement overlays or surface treatments applied after a pavement has reached its serviceable life will be of very short duration (estimated 3 to 9 months) and futile for long-term use. Many of the roads proposed for reconstruction in this project were initially constructed either during the construction of the plant in the early 1940s or during the conversion of the plant to an AEC plant in the mid-1950s. While the service life of these roads is not specifically known, it would not have been more than 20 years, which has been exceeded by 100% on many pavements.

Maintaining a good surface course on pavements at Pantex is especially critical due to poor drainage caused by the extremely flat terrain at the plant. Water from heavy snow storms and rains must be kept away from the pavement base and sub-base courses if the pavement is not to fail prematurely.

FY 1995 Projects

Subproject 95-39: Replacement of Compressed Air System, Pantex Plant, Amarillo, Texas

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$3,900	$0	$410	$420	$3,070	$0	1st Qtr FY 1997 - 2nd Qtr FY 1998

The Pantex Plant was built in the early 1940s and modified in 1951 to produce nuclear weapons. The existing compressed air piping system in both Zone 11 and 12 is undersized due to changes in building function and plant expansion over the past several years. Satellite (back-up) compressor stations are presently being used to provide good quality (dry, oil free) compressed air to buildings. There are currently 15 satellite compressors in Zone 11 and 88 in Zone 12. An estimated 25% reduction in maintenance costs will be realized when this project is completed.

The mission and programmatic objectives of the entire plant rely upon dependable and consistent supply of high quality compressed air. This project will provide that necessary utility. Compressed air is used extensively at the plant to operate hoists and tools used in the assembly/disassembly of weapons. Specially designed machine used to machine high explosive have special air bearings that require clean, dry air. Contamination of these bearings can cause failure with catastrophic results. Compressed air assists in the opening of heavy blast doors in the bays and cells. Compressed air is used in the control and actuation of vital fire protection systems in the bays and cells and heating, ventilation, and air conditioning controls throughout the plant.

FY 1997 funds ($3,070,000) will be used to complete construction activities.

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Subproject 95-40: Replace Firemains, Kansas City Plant, Kansas City, Missouri

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$4,900	$0	$4,900	$0	$0	$0	3rd Qtr FY 1996 - 4th Qtr FY 1998

$4,550 moved from project 91-29 to project 95-40 to fully fund project.

Sections of the existing fire protection sprinkler supply mains, some exterior underground and some interior overhead, will be replaced with new cement lined pipe to prevent corrosion, tuberlucation which has developed in the existing unlined pipe. The fire main to be replaced inside the main manufacturing building includes approximately 2,300 feet of 10-inch diameter, schedule 40 steel pipe. The underground cross main include includes approximately 400 feet of 8-inch diameter ductile iron pipe. All of this firemain replacement will be with cement lined pipe and will include replacement of appropriate valves and fittings. The underground piping for the four (4) sprinkler lead-ins involves approximately 300 feet of 10-inch diameter pipe and 400 feet of 8-inch diameter pipe.

FY 1996 Projects

Subproject 96-41: Replace Cooling Tower, East, Kansas City Plant, Kansas City, Missouri

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$5,020	$0	$0	$1,570	$3,450	$0	3rd Qtr FY 1997 - 3rd Qtr FY 1998

This subproject will combine and upgrade two of the separate and deteriorated condenser water systems at the East Boilerhouse. This will be accomplished by replacing the existing 5-cell center and 2-cell west cooling towers, six condenser water pumps, five variable speed pump drives, related electrical equipment and circuitry, two basin dewatering pumps, and the direct digital control (DDC) system for the condenser water; and by interconnecting the west and center cooling tower cold water basins and the condenser water piping. This will allow operation of combinations of chiller(s), tower(s), and pump(s). The new DDC system will control the tower fans, riser valves, pumps and monitors the performance of the condenser water systems.

The existing systems at the East Boilerhouse consist of:

1. West 2-cell cooling tower (CT-W) with three condenser water pumps, two with variable speed drives, and one constant speed pump, which is a backup.

2. Center 5-cell cooling tower (CT-C) with three condenser water pumps, all with variable speed drives, one of which is a backup.

3. East 2-cell cooling tower (CT-E) with two condenser water pumps, with no backup, and no variable speed drives. This system will not be modified.

The west and center towers are partially connected in the condenser water piping arrangement, but the tower basins are not connected. The east system is totally independent of the west and center. The three systems were installed in four stages at different times (1974 to 1984) to serve specific chillers/loads.

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

This project will interconnect the piping, basins, and controls of the west and center towers to allow any combinations of two towers (six cells) and five pumps to serve any combination of the projected load with ten chillers in the East Boilerhouse to produce 6750 tons.

The NWSSC within the DOE is comprised of seven weapons production plants at seven locations across the country. The NWSSC, through the Department, is responsible for the production and lifetime surveillance of safe and reliable nuclear weapons in support of the United States national security. The NWSSC's mission requires that it maintain the ability to (1) produce nuclear warheads, projectiles, and bombs as approved by the President as required to maintain and enhance our nation's nuclear deterrent; (2) maintain surveillance and certification of the technical quality of nuclear weapons in the existing stockpile; (3) supply and provision of the associated limited life components necessary to keep the stockpile in a War Readiness condition; and (4) disassemble and retire nuclear weapons and their components when they are removed from the stockpile. In this context, the NWSSC's role is an ongoing one until such time as all nuclear weapons are no longer needed and have been successfully retired from the stockpile.

The issue of maintaining the NWSSC's long-term ability to perform its mission was first addressed through the Utilities and Equipment Restoration, Replacement and Upgrade Program in the late seventies. This was a multi-year program encompassing the seven NWSSC sites as well as the three weapons laboratories and the Nevada Test site. Items of equipment and utility components were identified for possible replacement or upgrading when appraisals found them in poor physical condition and/or inadequate in terms of technology. Replacements and upgrade were accomplished in priority order using "control lists" at each site to assure allocation of funds to the highest need at that site. Thanks to Restoration making inroads against the deterioration identified in the appraisals and to somewhat increased levels of Capital Equipment funding received, the NWSSC has been able to meet workload delivery schedules and objectives during the early eighties. If those sources of funds had not been available, the deteriorated conditions would have severely jeopardized the meeting of those schedules. However, large problems continue to arise in its aging facilities (buildings, utilities, and other real property improvements). Reasons behind this are several:

- The NWSSC's buildings and the primary utilities supporting them are reaching critical points in their useful life-spans. Most of the current structures were designed for a 40 year life and were of commensurate construction. Many of the structures are now reaching 40 to 50 years of age, a point at which items such as interior utilities become critical problem areas and structural problems begin to surface. Roof life spans range from 15 to 30 years, depending on construction and roofing materials used, but cannot be expected to last beyond this age with reasonable integrity. HVAC systems, with a typical life of 15-20 years, need to be replaced or upgraded one or more times during a building's life-span. The primary utilities need sizable renovations typically after only 30 to 40 years, less in some areas with extreme weather or service conditions. On any utility equipment, spares are discontinued after approximately 25 years, making maintaining systems of NWSSC age increasingly difficult. These kinds of problems are routine for facilities the age of those in the NWSSC and require routine large-scale renovations, repairs and replacements to maintain the facility infrastructure. Such a maintenance program for an infrastructure of the NWSSC's size and complexity cannot be accomplished within existing GPP or operating funding limitations, yet must be ongoing to sustain the capability to perform the required functions.

- The NWSSC is going through a technological transition of immense proportions in order to keep pace with tight tolerance and new process demands imposed by the latest generation of weapon systems. Weapons systems now in Phase 4 are significantly more sophisticated and complex than their predecessors and are being built to much tighter tolerances than in the earlier decades. This, in turn, requires more controlled environments and closer tolerance support systems to sustain the new state-of-the-art production equipment and processes that are required. Environmental problems include tighter temperature and humidity requirements, dust control specifications, electrical power cleanliness and reliability, and higher floor and foundation resistance to vibration. Many of the current structures, utilities and other facilities cannot reliably support these high-tech demands in a long-term fashion as they continue to age and undergo continued upgrades.

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1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

In the past, large facility "fixes," such as those described above, have been budgeted for on a case-by-case, stand-alone basis, often being deferred several years until the problem compounds to the point of near-urgency priority before being funded. When there were few such problems to contend with, this was an acceptable practice. To continue it causes concern about maintaining the NWSSC's ability to perform its mission over the long term.

Since FCAP began in FY 1988, many new ES&H issues have surfaced revolving around the age and condition of the NWSSC and DOE's other related facilities. The subject headings include "Waste Treatment," "Radiation Contamination and Control," and "Technical Safety Appraisals" to name a few. Each has dealt in some way with problems caused by aging facilities and the need for a systematic replacement program, such as FCAP.

Most subprojects now in FCAP provide strong, though ancillary gains in environmental, safety or health areas (e.g., Change House Replacement, Y-12; In-Process Plutonium Vault, RF; and High Explosives Formulation Facility, Pantex). Increased, strong levels of support for FCAP as a program are necessary in order to maintain this orderly prioritized system. If support is not increased to the required levels, probabilities are very high that any subprojects slipped will become urgently needed ES&H stand-alones and will amplify concerns about the NWSSC's long term future.

A continuing, systematic replacement program supported at the proper funding level is essential.

FY 1997 Projects

Subproject 97-42: Hydraulic Press, Y-12 Plant, Oak Ridge, Tennessee

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$14,000	$0	$0	$0	$7,500	$6,500	1st Qtr FY 1998 - 4th Qtr FY 1999

This subproject will procure and install a new 3,500 ton press to forge billets and form machine blanks and will replace the 1,000, 1,500, and 7,500 ton presses in Building 9204-4. The press will be located in F-Area of Building 9998. Building 9998 will need extensive modifications to accommodate the new press. The equipment exhaust will be connected to the existing High Efficiency Particulate Air (HEPA) filter system. The floor will be modified to incorporate a pit and the building height will be increased. The building steel will be reinforced to facilitate press loading and utility services will be extended from existing headers in the area.

The FY 1997 obligations will provide for Titles I and II engineering, initiating construction and the procurement of the new press.

This subproject is required to support Defense Programs consolidation by completion of the equipment requirements for the depleted Uranium and Uranium alloy capabilities. This project will ensure the requirement to maintain nuclear competence. It is required to fully realize annual operating cost reductions. The project supports expected enhancements in worker health and safety by reducing potential exposure to airborne radioactive material, elimination of point of operation risks (OSHA), and elimination of administrative controls by installation of physically engineered controls to prevent worker exposure to hazardous operations and materials.

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations

2a. Project No. 88-D-122
2b. Construction Funded

9. Details of Cost Estimate

This cost estimate is based upon completed conceptual design reports and current funding profiles for all FCAP subprojects.

	FY 1988 Subprojects	FY 1989 Subprojects	FY 1990 Subprojects	FY 1991 Subprojects	FY 1992 Subproject	FY 1993 Subprojects	FY 1994 Subprojects
a. Engineering, design, and inspection and their percentage of construction costs, item b	$ 5,700	$ 19,970	$ 1,828	$ 13,940	$ 2,100	$ 1,500	$ 1,240
b. Construction costs (incl. spec. eqmt. e.g., gloveboxes)	56,450	69,020	6,915	80,658	7,475	9,900	17,290
c. Standard equipment	14,900	5,555	0	0	0	2,780	335
d. Other (incl Prog & Const Mgmt)	3,950	3,614	1,340	5,035	955	440	865
Subtotal	$ 81,000	$ 98,159	$ 10,083	$ 99,633	$ 10,530	$ 14,620	$ 19,730
Contingency @ % of (a+b+c+d) cost	5,563	14,301	1,650	16,185	490	2,240	3,170
Total estimated construction cost (TEC)	$ 86,563	$112,460	$ 11,733	$115,818	$ 11,020	$ 16,860	$ 22,900

	FY 1995 Subprojects	FY 1996 Subproject	FY 1997 Subproject
a. Engineering, design, and inspection and their percentage of construction costs, item b	$ 660	$ 570	$ 1,020
b. Construction costs (incl. spec. eqmt. e.g., gloveboxes)	6,240	3,050	10,550
c. Standard equipment	0	0	0
d. Other (incl Prog & Const Mgmt)	600	400	100
Subtotal	$ 7,500	$ 4,020	$ 11,670
Contingency @ % of (a+b+c+d) cost	1,300	1,000	2,330
Total estimated construction cost (TEC)	$ 8,800	$ 5,020	$ 14,000

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1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

9. Details of Cost Estimate (Continued)

Actual and planned allocation by location for fiscal year funds:

	FY 1988/ FY 1994	FY 1995	FY 1996	FY 1997	CUMULATIVE ALL FYs	CUMULATIVE TO COMPLETE
Kansas City Plant, Kansas City, MO	$ 87,479	$ 6,010	$ -430	$ 5,920	$ 98,979	$ 8,270
Pinellas Plant, Clearwater, FL	11,203	-2	0	0	11,201	0
Pantex Plant, Amarillo, TX	52,820	2,312	8,461	3,070	66,663	0
Mound Plant, Miamisburg, OH	14,909	0	0	0	14,909	0
Rocky Flats Plant, Golden, CO	7,913	0	0	0	7,913	0
Y-12 Plant, Oak Ridge, TN	145,169	5,400	-5,440	12,950	158,079	17,700
Sandia National Lab., Albuquerque, NM	21,360	0	0	0	21,360	0
Savannah River Site, Aiken, SC	5,000	-4,900	0	0	100	0
Total allocations by fiscal year	$345,853	$ 8,820	$ 2,591	$ 21,940	$379,204	$ 25,970

10. Method of Performance

Design and procurement of these facilities will be performed under negotiated architect-engineer contracts. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	Beyond FY 1998	Total
A. Total project costs						
1. Total facility costs						
(a) Construction line item	$ 240,428	$ 33,733	$ 59,414	$ 45,080	$ 26,519	$ 405,174
Total facility costs	$ 240,428	$ 33,733	$ 59,414	$ 45,080	$ 26,519	$ 405,174
2. Other project costs						
(a) Conceptual design reports, studies, and site characterizations	$ 16,575	$ 1,000	$ 1,000	$ 955	$ 1,455	$ 20,985
(b) ES&H and start-up documentation	10,925	3,495	3,495	3,750	4,250	25,915
Total other project funding	$ 27,500	$ 4,495	$ 4,495	$ 4,705	$ 5,705	$ 46,900
Total project costs	$ 267,928	$ 38,228	$ 63,909	$ 49,785	$ 32,224	$ 452,074

1. Title and Location of Project: Facilities Capability Assurance Program (FCAP), Various Locations	2a. Project No. 88-D-122 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs

This represents normal engineering design, procurement, construction, and inspection of utility and construction projects of this size, range, and complexity.

2. Other project costs

(a) Conceptual design report (CDR) costs are included for 41 ongoing subprojects. CDR costs are not included for subprojects being developed but not in this data sheet. CDR preparation is averaging one percent (1%) of the total estimated construction cost (TEC); follow-on studies and site characterization activities that must be accomplished during Title I & II design average an additional one percent (1%) of the TEC.

(b) ES&H documentation and reporting has become more intense; this includes environmental documentation (EA's or EIS's) and health and safety documentation (SA's, PSAR's, SAR's, et al) which usually must be completed before construction can be started. These activities average from one to five percent (1% - 5%) of the subproject TEC.

Start-up documentation and reporting requirements have increased significantly. These include operational readiness reviews, operating procedure reports, operating safety reviews, et al; these costs are as much as 25% of the subproject TEC for complex, specialized facilities and processes, both nuclear and non-nuclear, and the action must be completed before the facilities can be placed in operation.

b. Related annual costs

Estimated programmatic lives of these facilities vary by site and by subproject. The other related funding requirements for these facilities are not considered to be significantly different from those of the facilities being replaced by this program. Therefore, no costs are shown.

Attachment I

FY 1997 FCAP CONGRESSIONAL BUDGET SUMMARY

Subproject Number	Subproject Title	Location	TEC	Appropriation Schedule ($ in Thousands) FY 88/94	FY 1995	FY 1996	FY 1997	Out Years	Remarks
88	...FCAP FY 1988								
88-01	Weapons Spec Purpose Bay Replmt Complex	PX	$ 30,000	$ 30,000	$ 0	$ 0	$ 0	$ 0	Completed.
88-02	Weapons Prod'n Primary Stds Laboratory	SNL	17,700	17,700	0	0	0	0	Completed.
88-03	Elec'l Distrib'n System Replmt & Upgrd	RF	0	0	0	0	0	0	Trans. to EM.
88-04	Replace Wooden Buildings	OR	10,750	10,750	0	0	0	0	Completed.
88-05	Renov Power Supply/Distrib'n System	OR	7,458	7,458	0	0	0	0	Completed.
88-06	Restore Condensed Water System	KC	1,722	1,722	0	0	0	0	Completed.
88-07	Roof Replacements	RF	5,840	5,840	0	0	0	0	Completed.
88-08	Replace HVAC and Process Cooling Sys	MD	7,083	7,083	0	0	0	0	Completed.
88-09	HVAC Replacements	PI	2,930	2,932	-2	0	0	0	Completed.
88-10	Replace Air Handling Units & HVAC	KC	3,080	3,080	0	0	0	0	Completed.
		FY 1988 Total	$ 86,563	$ 86,565	$ -2	$ 0	$ 0	$ 0	
89	...FCAP FY 1989								
89-11	Lithium Process Replacement	OR	$ 54,533	$ 54,533	$ 0	$ 0	$ 0	$ 0	
89-12	Nuclear Facilities Modernization	MD	7,056	7,056	0	0	0	0	
89-13	Replace Microminiature Electronics	KC	29,100	29,100	0	0	0	0	
89-14	Replace Deionized Water System	PI	8,271	8,271	0	0	0	0	Completed.
89-15	Change House Replacement	OR	13,500	13,500	0	0	0	0	Completed.
		FY 1989 Total	$112,460	$112,460	$ 0	$ 0	$ 0	$ 0	
		TOTAL FY 1988/89	$199,023	$199,025	$ -2	$ 0	$ 0	$ 0	

Attachment I (cont'd)

FY 1997 FCAP CONGRESSIONAL BUDGET SUMMARY

Subproject Number	Subproject Title	Location	TEC	Appropriation Schedule ($ in Thousands) FY 88/94	FY 1995	FY 1996	FY 1997	Out Years	Remarks
	TOTAL FY 1988/89		$199,023	$199,025	$ -2	$ 0	$ 0	$ 0	
90	...FCAP FY 1990								
90-16	Building Electrical Rehabilitation	RF	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	Trans. to EM.
90-17	Production Plating Shop Replacement	OR	9,660	22,400	-4,000	-8,740	0	0	Canceled.
90-18	In-Process Plutonium Staging Vault	RF	2,070	2,070	0	0	0	0	Canceled.
90-19	Support Office Buildings	RF	3	3	0	0	0	0	Canceled.
90-20	West Area Utility Expansion	RF	0	0	0	0	0	0	Canceled.
90-21	Repl Support Contractor Facility	RF	0	0	0	0	0	0	Canceled.
	FY 1990 Total		$ 11,733	$ 24,473	$ -4,000	$ -8,740	$ 0	$ 0	
	TOTAL FY 1988/90		$210,756	$223,498	$ -4,002	$ -8,740	$ 0	$ 0	
91	...FCAP FY 1991								
91-22	Replace Electrical System Components	KC	$ 12,700	$ 12,700	$ 0	$ 0	$ 0	$ 0	
91-23	High Explosives Formulation Facility	PX	1,963	3,920	-1,957	0	0	0	Canceled.
91-24	Renovate Water Supply System	PX	9,500	9,500	0	0	0	0	
91-25	Central Steam Plant Renovation	RF	0	0	0	0	0	0	Trans. to EM.
91-26	Replace Graphite Dust Collection System	OR	361	361	0	0	0	0	Canceled.
91-27	Refurb/m't Power Supply/Distr'n System	DW	54,597	33,947	5,400	1,100	2,950	11,200	
91-28	Site Electrical Replacements	MD	770	770	0	0	0	0	Canceled.
91-29	Replace Temp and Humidity Cond'n'g Sys	KC	27,927	32,477	-4,550	0	0	0	
91-30	Central Fire Sta/Emerg Oper'ns Center	PX	8,000	8,000	0	0	0	0	
	FY 1991 Total		$115,818	$101,675	$ -1,107	$ 1,100	$ 2,950	$ 11,200	
	TOTAL FY 1988/91		$326,574	$325,173	$ -5,109	$ -7,640	$ 2,950	$ 11,200	

Attachment I (cont'd)

FY 1997 FCAP CONGRESSIONAL BUDGET SUMMARY

Subproject Number	Subproject Title	Location	TEC	Appropriation Schedule ($ in Thousands) FY 88/94	FY 1995	FY 1996	FY 1997	Out Years	Remarks
		TOTAL FY 1988/91	$326,574	$325,173	$ -5,109	$ -7,640	$ 2,950	$ 11,200	
92	...FCAP FY 1992								
92-31	Replace/Refurb Deteriorated Elevators	OR	$ 10,920	$ 2,220	$ 4,000	$ 2,200	$ 2,500	$ 0	Downscoped.
92-32	Tritium Ship Container Facility	SR	100	5,000	-4,900	0	0	0	Canceled.
		FY 1992 Total	$ 11,020	$ 7,220	$ -900	$ 2,200	$ 2,500	$ 0	
		TOTAL FY 1988/92	$337,594	$332,393	$ -6,009	$ -5,440	$ 5,450	$ 11,200	
93	...FCAP FY 1993								
93-33	Pu Facility HVAC Restoration	RF	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	Trans. to EM.
93-34	Repl Deteriorated Buildings	OR	0	0	0	0	0	0	Canceled.
93-35	Upgrd Materials Engr'g Laboratory	KC	13,200	5,200	160	0	2,470	5,370	
93-36	Investment Casting Furnace Facility	SNL	3,660	3,660	0	0	0	0	
		FY 1993 Total	$ 16,860	$ 8,860	$ 160	$ 0	$ 2,470	$ 5,370	
		TOTAL FY 1988/93	$354,454	$341,253	$ -5,849	$ -5,440	$ 7,920	$ 16,570	
94	...FCAP FY 1994								
94-37	Chilled Water System Replacements	KC	$ 9,600	$ 3,200	$ 5,500	$ -2,000	$ 0	$ 2,900	Downscoped.
94-38	Roads and Parking Area Upgrade	PX	13,300	1,400	3,859	8,041	0	0	
		FY 1994 Total	$ 22,900	$ 4,600	$ 9,359	$ 6,041	$ 0	$ 2,900	
		TOTAL FY 1988/94	$377,354	$345,853	$ 3,510	$ 601	$ 7,920	$ 19,470	

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Attachment I (cont'd)

FY 1997 FCAP CONGRESSIONAL BUDGET SUMMARY

Subproject Number	Subproject Title	Location	TEC	Appropriation Schedule ($ in Thousands) FY 88/94	FY 1995	FY 1996	FY 1997	Out Years	Remarks
		TOTAL FY 1988/94	$377,354	$345,853	$ 3,510	$ 601	$ 7,920	$ 19,470	
95	...FCAP FY 1995								
95-39	Replacement Compressed Air System	PX	$ 3,900	$ 0	$ 410	$ 420	$ 3,070	$ 0	
95-40	Replace Firemains	KC	4,900	0	4,900	0	0	0	
		FY 1994 Total	$ 8,800	$ 0	$ 5,310	$ 420	$ 3,070	$ 0	
		TOTAL FY 1988/95	$386,154	$345,853	$ 8,820	$ 1,021	$ 10,990	$ 19,470	
96	...FCAP FY 1996								
96-41	Replace Cooling Tower, East	KC	$ 5,020	$ 0	$ 0	$ 1,570	$ 3,450	$ 0	
		TOTAL FY 1988/96	$391,174	$345,853	$ 8,820	$ 2,591	$ 14,440	$ 19,470	
97	...FCAP FY 1997								
97-42	Hydraulic Press	DR	$ 14,000	$ 0	$ 0	$ 0	$ 7,500	$ 6,500	
		TOTAL FY 1988/97	$405,174	$345,853	$ 8,820	$ 2,591	$ 21,940	$ 25,970	

Attachment II

FY 1997 FCAP CONGRESSIONAL BUDGET
SUBPROJECTS BY SITE

Subproject Number	Subproject Title	Location	TEC	Appropriation Schedule ($ in Thousands) FY 88/94	FY 1995	FY 1996	FY 1997	Out Years	Remarks
	...Pantex Plant								
88-01	Weapons Spec Purpose Bay Replmt Complex	PX	$ 30,000	$ 30,000	$ 0	$ 0	$ 0	$ 0	Completed.
91-23	High Explosives Formulation Facility	PX	1,963	3,920	-1,957	0	0	0	Canceled.
91-24	Renovate Water Supply System	PX	9,500	9,500	0	0	0	0	
91-30	Central Fire Sta/Emerg Oper'ns Center	PX	8,000	8,000	0	0	0	0	
94-38	Roads and Parking Area Upgrade	PX	13,300	1,400	3,859	8,041	0	0	
95-39	Replacement of Compressed Air System	PX	3,900	0	410	420	3,070	0	
		TOTAL	$ 66,663	$ 52,820	$ 2,312	$ 8,461	$ 3,070	$ 0	
	...Sandia National Laboratory								
88-02	Weapons Prod'n Primary Stds Laboratory	SNL	$ 17,700	$ 17,700	$ 0	$ 0	$ 0	$ 0	Completed.
93-36	Investment Casting Furnace	SNL	3,660	3,660	0	0	0	0	
		TOTAL	$ 21,360	$ 21,360	$ 0	$ 0	$ 0	$ 0	
	...Rocky Flats Plant								
88-07	Roof Replacements	RF	$ 5,840	$ 5,840	$ 0	$ 0	$ 0	$ 0	Completed.
90-18	In-Process Plutonium Staging Vault	RF	2,070	2,070	0	0	0	0	Canceled.
90-19	Support Office Buildings	RF	3	3	0	0	0	0	Canceled.
90-20	West Area Utility Expansion	RF	0	0	0	0	0	0	Canceled.
90-21	Repl Support Contractor Facility	RF	0	0	0	0	0	0	Canceled.
		RF TRANS TOTAL	$ 7,913	$ 7,913	$ 0	$ 0	$ 0	$ 0	
	...Transferred to EM - Not Included in Grand Total								
88-03	Elec'l Distrib'n System Replmt & Upgrd	RF	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	Trans. to EM.
90-16	Building Electrical Rehabilitation	RF	0	0	0	0	0	0	Trans. to EM.
91-25	Central Steam Plant Renovation	RF	0	0	0	0	0	0	Trans. to EM.
93-33	Pu Facility HVAC Restoration	RF	0	0	0	0	0	0	Trans. to EM.
		TOTAL	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	

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Attachment II (cont'd)

FY 1997 FCAP CONGRESSIONAL BUDGET SUMMARY
SUBPROJECTS BY SITE

Subproject Number	Subproject Title	Location	TEC	Appropriation Schedule ($ in Thousands) FY 88/94	FY 1995	FY 1996	FY 1997	Out Years	Remarks
	...Y-12 Plant								
88-04	Replace Wooden Buildings	OR	$ 10,750	$ 10,750	$ 0	$ 0	$ 0	$ 0	Completed.
88-05	Renov Power Supply/Distrib'n System	OR	7,458	7,458	0	0	0	0	Completed.
89-11	Lithium Process Replacement	OR	54,533	54,533	0	0	0	0	
89-15	Change House Replacement	OR	13,500	13,500	0	0	0	0	Completed.
90-17	Production Plating Shop Replacement	OR	9,660	22,400	-4,000	-8,740	0	0	Canceled.
91-26	Replace Graphite Dust Collection System	OR	361	361	0	0	0	0	Canceled.
91-27	Refurb'm't Power Supply/Distr'n System	OR	54,597	33,947	5,400	1,100	2,950	11,200	
92-31	Replace/Refurb Deteriorated Elevators	OR	10,920	2,220	4,000	2,200	2,500	0	Downscoped.
93-34	Repl Deteriorated Buildings	OR	0	0	0	0	0	0	Canceled.
97-42	Hydraulic Press	OR	14,000	0	0	0	7,500	6,500	
		TOTAL	$175,779	$145,169	$ 5,400	$ -5,440	$ 12,950	$ 17,700	
	...Kansas City Plant								
88-06	Restore Condensed Water System	KC	$ 1,722	$ 1,722	$ 0	$ 0	$ 0	$ 0	Completed.
88-10	Replace Air Handling Units & HVAC	KC	3,080	3,080	0	0	0	0	Completed.
89-13	Replace Microminiature Electronics	KC	29,100	29,100	0	0	0	0	
91-22	Replace Electrical System Components	KC	12,700	12,700	0	0	0	0	
91-29	Replace Temp and Humidity Cond'n'g Sys	KC	27,927	32,477	-4,550	0	0	0	
93-35	Upgrd Materials Engr'g Laboratory	KC	13,200	5,200	160	0	2,470	5,370	
94-37	Chilled Water System Replants	KC	9,600	3,200	5,500	-2,000	0	2,900	Downscoped.
95-40	Replace Firemains	KC	4,900	0	4,900	0	0	0	
96-41	Replace Cooling Tower, East	KC	5,020	0	0	1,570	3,450	0	
		TOTAL	$107,249	$ 87,479	$ 6,010	$ -430	$ 5,920	$ 8,270	
	...Mound Plant								
88-08	Replace HVAC and Process Cooling Sys	MD	$ 7,083	$ 7,083	$ 0	$ 0	$ 0	$ 0	Completed.
89-12	Nuclear Facilities Modernization	MD	7,056	7,056	0	0	0	0	
91-28	Site Electrical Replacements	MD	770	770	0	0	0	0	Canceled.
		TOTAL	$ 14,909	$ 14,909	$ 0	$ 0	$ 0	$ 0	

Attachment II (cont'd)

FY 1997 FCAP CONGRESSIONAL BUDGET SUMMARY
SUBPROJECTS BY SITE

Subproject Number	Subproject Title	Location	TEC	Appropriation Schedule ($ in Thousands) FY 88/94	FY 1995	FY 1996	FY 1997	Out Years	Remarks
	...Pinellas Plant								
88-09	HVAC Replacements	PI	$ 2,930	$ 2,932	$ -2	$ 0	$ 0	$ 0	Completed.
89-14	Replace Deionized Water System	PI	8,271	8,271	0	0	0	0	Completed.
		TOTAL	$ 11,201	$ 11,203	$ -2	$ 0	$ 0	$ 0	
	...Savannah River Plant								
92-32	Tritium Ship Container Facility	SR	$ 100	$ 5,000	$ -4,900	$ 0	$ 0	$ 0	Canceled.
		TOTAL	$ 100	$ 5,000	$ -4,900	$ 0	$ 0	$ 0	

ATTACHMENT III
FY 1997 FCAP CONGRESSIONAL BUDGET
PROJECT SUMMARY

Subproject Number	Subproject Title	Location	TEC	Appropriation Schedule ($ in Thousands) FY 1988-FY 1994	FY 1995	FY 1996	FY 1997	Outyears	Remarks
88-01	Weapons Spec Purpose Bay Replmt Complex	PX	$ 30,000	$ 30,000	$ 0	$ 0	$ 0	$ 0	Completed
88-02	Weapons Prod'n Primary Stds Laboratory	SNL	17,700	17,700	0	0	0	0	Completed
88-03	Elec'l Distrib'n System Replmt & Upgrd	RF	0	0	0	0	0	0	Transfer to EM
88-04	Replace Wooden Buildings	OR	10,750	10,750	0	0	0	0	Completed
88-05	Renov Power Supply/Distrib'n System	NR	7,458	7,458	0	0	0	0	Completed
88-06	Restore Condensed Water System	KC	1,722	1,722	0	0	0	0	Completed
88-07	Roof Replacements	RF	5,840	5,840	0	0	0	0	Completed
88-08	Replace HVAC and Process Cooling Sys	MD	7,083	7,083	0	0	0	0	Completed
88-09	HVAC Replacements	PI	2,930	2,932	-2	0	0	0	Completed
88-10	Replace Air Handling Units & HVAC	KC	3,080	3,080	0	0	0	0	Completed
89-11	Lithium Process Replacement	OR	54,533	54,533	0	0	0	0	
89-12	Nuclear Facilities Modernization	MD	7,056	7,056	0	0	0	0	
89-13	Replace Microminiature Electronics	KC	29,100	29,100	0	0	0	0	
89-14	Replace Deionized Water System	PI	8,271	8,271	0	0	0	0	Completed
89-15	Change House Replacement	OR	13,500	13,500	0	0	0	0	Completed
90-16	Building Electrical Rehabilitation	RF	0	0	0	0	0	0	Transfer to EM
90-17	Production Plating Shop Replacement	OR	9,660	22,400	-4,000	-8,740	0	0	Canceled
90-18	In-Process Plutonium Staging Vault	RF	2,070	2,070	0	0	0	0	Canceled
90-19	Support Office Buildings	RF	3	3	0	0	0	0	Canceled
90-20	West Area Utility Expansion	RF	0	0	0	0	0	0	Canceled
90-21	Repl Support Contractor Facility	RF	0	0	0	0	0	0	Canceled
91-22	Replace Electrical System Components	KC	12,700	12,700	0	0	0	0	
91-23	High Explosives Formulation Facility	PX	1,963	3,920	-1,957	0	0	0	Canceled
91-24	Renovate Water Supply System	PX	9,500	9,500	0	0	0	0	
91-25	Central Steam Plant Renovation	RF	0	0	0	0	0	0	Transfer to EM
91-26	Replace Graphite Dust Collection System	OR	361	361	0	0	0	0	Canceled
91-27	Refurb'm't Power Supply/Distr'n System	OR	54,597	33,947	5,400	1,100	2,950	11,200	
91-28	Site Electrical Replacements	MD	770	770	0	0	0	0	Canceled
91-29	Replace Temp and Humidity Cond'n'g Sys	KC	27,927	32,477	-4,550	0	0	0	
91-30	Central Fire Sta/Emerg Oper'ns Center	PX	8,000	8,000	0	0	0	0	
92-31	Replace/Refurb Deteriorated Elevators	OR	10,920	2,220	4,000	2,200	2,500	0	Downscoped
92-32	Tritium Ship Container Facility	SR	100	5,000	-4,900	0	0	0	Canceled
93-33	Pu Facility HVAC Restoration	RF	0	0	0	0	0	0	Transfer to EM
93-34	Repl Deteriorated Buildings	OR	0	0	0	0	0	0	Canceled
93-35	Upgrd Materials Engr'g Laboratory	KC	13,200	5,200	160	0	2,470	5,370	
93-36	Investment Casting Furnace Facility	SNL	3,660	3,660	0	0	0	0	
94-37	Chilled Water System Replants	KC	9,600	3,200	5,500	-2,000	0	2,900	Downscoped
94-38	Roads and Parking Area Upgrade	PX	13,300	1,400	3,859	8,041	0	0	
95-39	Replacement of Compressed Air Systems	PX	3,900	0	410	420	3,070	0	
95-40	Replace Firemains	KC	4,900	0	4,900	0	0	0	
96-41	Replace Cooling Tower, East	KC	5,020	0	0	1,570	3,450	0	
97-42	Hydraulic Press	OR	14,000	0	0	0	7,500	6,500	
		TOTAL	$405,174	$345,853	$ 8,820	$ 2,591	$ 21,940	$ 25,970	

1. Title and Location of Project: Security Enhancement, Pantex Plant, Amarillo, Texas	2a. Project No.: 88-D-123 2b. Construction Funded

SIGNIFICANT CHANGES

- Subproject 01a - SNM Component Staging Facility Backfits--added to address Building 12-116 deficiencies tied to design, construction, and current DOE design/operating criteria, for a Hazard Category 2 (moderate hazard) nuclear facility. Additional funding will come from current SEP contingency resources.
- Subproject TEC increases are due to prior year funding reductions and escalation cost increases due to subproject start delays.
- Subproject TEC decreases reflect fixed priced contract awards and estimates at completion (EAC).
- Related annual costs changed to reflect total cost. Previous estimate of $2 million reflects incremental costs.

Stockpile Management

1. Title and Location of Project: Security Enhancement, Pantex Plant, Amarillo, Texas

2a. Project No.: 88-D-123
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 3rd Qtr. FY 1988

3b. A-E Work (Titles I & II) Duration: 3rd Qtr. FY 1988 - 2nd Qtr. FY 1994

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $125,000
Total Project Cost (TPC) -- $130,000

4a. Date Physical Construction Starts: 3rd Qtr. FY 1990

4b. Date Construction Ends: 4th Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $125,000
TPC -- $130,000

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1988	$ 5,700	$ 0	$ 5,700	$ 69
1989	7,500	0	3,500	2,586
1990	5,500	(83)a/	2,417	3,514
1991	18,244	0	23,701	8,407
1992	30,000	0	30,692	15,042
1993	0	0	372	9,700
1994	20,000	0	20,000	13,235
1995	15,000	0	14,937	34,754
1996	13,400	0	12,463	18,239
1997	9,739	0	9,740	16,454
1998	0	0	1,478	3,000

8. Project Description, Justification and Scope

This project identifies subprojects required to enhance the Pantex security posture.

Because of the high target attractiveness inherent in its mission, and the ever-increasing concern for stronger, more effective protection programs, the Pantex Plant has implemented, over the years, a steady stream of security and safeguards-related upgrades/enhancement projects. These improvements have made the Pantex protection system strong, but the issuance of revised threat guidance and evolving changes in philosophy have imposed stringent expanded requirements on acceptable levels of security and safeguards protection programs. As a result, an

a/ Reflects the Sequestration of funds for FY 1990.

1. Title and Location of Project: Security Enhancement, Pantex Plant, Amarillo, Texas (Continued)	2a. Project No.: 88-D-123 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

in-depth analysis has been performed of Pantex and its current ability to counter all adversary threats enumerated in the "Generic Threats to DOE Nuclear Programs and Facilities Statement," dated January 1983, with emphasis placed on the insider threat.

The in-depth analysis includes detailed vulnerability studies and credible scenarios. As a result, the security upgrades proposed in this project are necessary to improve the ability of Pantex to defeat potential adverse actions as described in the latest DOE threat guidance.

These subprojects reflect the best security enhancement from information and emphasis known to date. The scope and priority of each subproject is subject to subsequent revision to reflect the results of further vulnerability assessments, field exercises, and inspections and management direction. This is required to assure that the results of further threat scenario analysis are considered in the actual implementation of the subprojects. The project costs reflect this.

The Production Zone (Zone 12 South), the Special Nuclear Material (SNM) Isolation Area, the Staging Area (Zone 4 West), and the general site include projects which enhance Pantex physical protection, detection alarm assessment, SNM facilities, safeguards of SNM, access control, and security training.

Each subproject includes associated site work for drainage, roads, parking, and utilities. Also included are foundations, walls, roofs, doors, windows, water, sewer, HVAC mechanical equipment, fire protection, alarms, lights, and electrical power to make it functional and satisfy general facility design requirements.

a. Subproject 01 - SNM Component Staging Facility b/

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$22,300	$22,300	$0	$0	$0	$0	1st Qtr. FY 1991 - Completed

There are six objectives that this subproject will accomplish. These objectives are:

- Enhance the plant's security and safeguards postures by constructing a 46,000 square foot facility that will provide the highest amount of physical protection for Special Nuclear Material (SNM).
- Reduce personnel radiation exposure from SNM to the lowest possible level in the most efficient manner.
- Enhance the overall fire safety for the receiving, storage, and inspection of SNM by obtaining a new noncombustible fire-resistant facility which will have operations separate from other warehousing and plant operations.
- Consolidate the staging and support operations in order to achieve a more efficient operation.
- Eliminate crowded conditions in the operational areas which create operational inefficiencies.
- Reinstitute an assembly cell for production use currently being used as an interim SNM staging area.

b/ This subproject is currently being evaluated to determine the extent of design deficiencies to be corrected before facility operation is approved. Total estimated cost for this retrofiting will be completed by the end of the 3rd Qtr. FY 1996. Increased costs will be absorbed by project contingency.

8. Project Description, Justification and Scope (Continued)

a. Subproject 01a - SNM Component Staging Facility Backfit

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$2,500	$0	$2,500	$0	$0	$0	4th Qtr. FY 1995 - 4th Qtr. FY 1996

The purpose of this subproject is to modify the facility to comply with applicable portions of DOE Order 6430.1A. These modifications will be necessary to comply with new safety regulations adopted since the initiation of the design of the facility.

The TEC of $2,500,000 is to fund initial analysis, design and construction costs for modifications to insure that the facility meets DOE Order 6438.1a requirements. It is presently forecasted that further funds will be required once the analysis is completed.

b. Subproject 02 - Protected Area Enhancements

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$2,850	$4,600	$(1,750)	$0	$0	$0	3rd Qtr. FY 1990 - 4th Qtr. FY 1996

This subproject provided for construction of guard stations and will provide for equipment procurement to upgrade security stations at the entrances to protected areas of the Pantex Plant. This subproject includes a protected area guard station upgrade, vehicle barriers and gamma detectors, x-ray, and metal detectors. Equipment procurement and installation has been combined under Electronic Enhancements - Argus, per Baseline Change Proposal 04.

The security stations involved, locations, and work performed follows:

- Building 11-40, Station 3, entrance on east side of Zone 11. Install detectors with audible and visual alarms for pedestrian and vehicular traffic.

- Building 16-3, Station 7, entrance near Vehicle Maintenance Facility, Building 16-1. Install detectors with audible and visual alarms for pedestrian and vehicular traffic.

- Building 12-54, Station 20, personnel entrance at south end of Zone 12 South provided by FY 1984 line item, Weapons Assembly Bays Changehouse and Guard Station. This subproject is complete.

- Personnel entrance in ramp near Building 12-1, Changehouse, Station 24. Install detector with visual and audible alarms for pedestrian traffic.

- Building 12-90, Station 26, personnel entrance at north end of Zone 12 South in ramp near Building 12-33, Subassembly. This subproject is complete.

- Building 12-77, Station 28, vehicle entrance at north end of Zone 12 South. Install access control equipment and vehicle barriers in the Zone 12 South Vehicle Entrance Guard Station provided by the FY 1986 line item project, Safeguards and Site Security Upgrade, Phase II. The access control equipment to be installed includes PPIV, metal detectors, gamma radiation, and package search.

- Building 4-145, Station 30, entrance on south side of Zone 4. This subproject is complete.

1. Title and Location of Project: Security Enhancement, Pantex Plant, Amarillo, Texas (Continued)	2a. Project No.: 88-D-123 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

- Entrance for construction workers and material on west side of Zone 12 South at Station 88. Relocate an existing hardened security station such that it is outside the Perimeter Intrusion Detection and Assessment System (PIDAS) area. This subproject is complete.

- Building 12-114, Station 8, personnel and vehicular entrance on the south side of the Material Access Area (MAA). Provide six PPIV booths.

c. Subproject 03 - Electronic Enhancements c/

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$73,520	$42,631	$14,250	$6,900	$9,739	$0	4th Qtr. FY 1993 - 4th Qtr. FY 1997

This subproject is for the replacement and enhancement of electronic security systems at the Pantex Plant.

Upgrading and enhancing the security systems include the responsibility to integrate as well as to modernize. Secured radio broadcasts will add to the security effectiveness at Pantex. Following are the detailed descriptions:

- PIDAS: The existing PIDAS in Zones 4 and 12 have been in place for several years. Both systems have aged and are increasingly difficult to maintain. As a first line of defense against intruders into SNM areas and as a means of detecting insiders attempting to escape with stolen material, it is important for PIDAS to perform as well as possible.

- ISAS: The Interior Security Alarm Systems (ISAS) are also several years old and are of many incompatible varieties. The ISAS will be replaced with a single integrated system providing a composite risk reduction of 2-3 orders of magnitude, a single-man-machine interface, a single maintenance program and the reliability of a redundant system.

- ADS: The Aircraft Detection System (ADS) is required in order to detect the intrusion of rotary or fixed wing aircraft into the plant. The topographical features of the Pantex Plant include flat, treeless terrain with no tall buildings. Such terrain does not inhibit low flying or landing aircraft.

- Radio Communications: With the standard radio equipment currently in use by the Security Division at Pantex, transmissions can be received by anyone using a scanning radio receiver and they may make unauthorized use of information from such reception. Broadcasting by unauthorized persons and/or frequency jamming using Pantex frequency assignments could, at a minimum, inconvenience security operations. If done so as a diversionary maneuver by a hostile threat, serious damage could result. Installation of the new radio equipment and new procedures would greatly reduce the ability to disrupt radio communication operations. Radio communications for Special Response Team members will be Data Encrypted Signal (DES).

- Compartmentation: Compartmentation provides additional protection against the outsider and reduces the risk against the insider. To the outside, Compartmentation offers another obstacle and at the very least an additional delay because each work area becomes a vault which is in a locked condition. To the insider, Compartmentation is a deterrent that makes it harder to accomplish his goal. To security, Compartmentation increases the delay time for the outsider and reduces the number of potential insiders possible in a particular area. Compartmentation also raises the number of insiders needed to accomplish successfully their goal, thus making detection of the insider easier. Compartmentation is an effective method of reducing the risks associated with the insider threat by

c/ The Weapons Material Tracking System (WMTS) was deleted from the scope of work for Electronic Enhancements. Remaining WMTS funds were allocated to Electronic Enhancements contingency to cover increases in design and construction.

1. Title and Location of Project: Security Enhancement, Pantex Plant, Amarillo, Texas (Continued)	2a. Project No.: 88-D-123 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

limiting the number of personnel with access to production work areas. Independent, as well as "in-house," security analysis initiated Compartmentation, based on assessments of targets, insider vulnerability, and procedural noncompliance.

d. Subproject 04 - Central Shipping and Receiving Facility

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$5,930	$5,930	$0	$0	$0	$0	3rd Qtr. 1992 - Completed

This subproject provided design and construction for a Central Shipping/Receiving Facility (CSRF) at the Pantex Plant.

Construction of this subproject was completed during the first quarter of FY 1994.

e. Subproject 05 - Perimeter Lighting System

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$350	$350	$0	$0	$0	$0	3rd Qtr. FY 1993 - Completed

Construction of this subproject was completed during the 4th quarter of FY 1995.

f. Subproject 06 - Weapons Tactics and Training Facility

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$5,500	$1,000	$0	$4,500	$0	$0	1st Qtr. FY 1996 - 2nd Qtr. FY 1997

The principle purpose of this subproject is to provide centralized arms training and qualification capabilities for the Pantex Security force and the DOE/Albuquerque Operations Office Transportation Safeguards Division. The WTTF will also provide the capability for implementation of advanced live-fire training concepts, neutralization of hostile forces tactics, stress/decision shooting, and night-fire training. In addition, both organizations will use the WTTF for research, development, and evaluation purposes.

The existing firing range facilities are undersized and cannot adequately accommodate the growth that has been experienced by the Security force. Also, the current facilities do not provide the capability to train guards in "shoot-don't-shoot" and tactical situations. This type of training is presently done in the production area.

The WTTF shall consist mainly of the following subprojects:

- M-16 Rifle Range
- Practical Pistol Course 2 (PPC)
- Training/Support Facility
- One Tactical Firing Range
- Shooting House

1. Title and Location of Project: Security Enhancement, Pantex Plant, Amarillo, Texas (Continued)	2a. Project No.: 88-D-123 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The approximate size of the WITF's support buildings are:

	Net Square Feet
Training/Support Facility	8,600
Shooting House (No Roof)	2,400
Approximate Total	11,000

The remaining subprojects are nonstructural firing range areas that are enclosed on three sides by earth berms.

g. Subproject 07 - Physical Training Facility

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$2,500	$500	$0	$2,000	$0	$0	1st Qtr. FY 1996 - 1st Qtr. FY 1997

The purpose of this subproject is to provide a centralized, permanent facility for the physical training of the Pantex Security Force. Three mobile trailers are currently being used for interim physical training to meet the requirements established by the DOE. However, these facilities were not designed for this purpose. Consequently, the physical training program must be limited to that which can be housed in such structures. A permanent structure is needed to provide adequate facilities for a physical training program.

This subproject provides for the design and construction of the Physical Training Facility (PTF). The upgrade of the existing running track a subproject of the PTF was completed during the fourth quarter of FY 1993. The approximate size of this PTF facility will be 11,000 gross square feet. The proposed site for the PTF is located in Zone 12, northwest of the Security Command Center (Building 1275) and north of the existing running track.

h. Subproject 08 - Alternate Command Posts (ACP)

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$3,100	$3,100	$0	$0	$0	$0	2nd Qtr. FY 1994 - 4th Qtr. FY 1995

At the present time, Plant security operations are monitored through the Security Command Center. All alarms and calls are fed to the Communications Room, the situation is evaluated, and security personnel are dispatched as necessary. The armory for the protective force is also in the Security Command Center.

The primary purpose of this subproject is to provide an alternate alarm gathering and communications center. These alternative alarm annunciation point will be provided in the production area, Zone 12 South, and will be continuously manned by security personnel. An alarm shall sound in the SCC, with a backup alarm sounding in the ACP, this, providing a redundant alarm annunciation system. This will reduce the vulnerability of the Security Command Center and enhance Plant Security.

The ACP shall be a hardened concrete structure. The ACP shall be approximately 2,900 gross square feet in area with parking for 15 vehicles. The alarm collection building in Zone 4 will be approximately 300 gross square feet.

1. Title and Location of Project: Security Enhancement, Pantex Plant, Amarillo, Texas (Continued)	2a. Project No.: 88-D-123 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

i. Subproject 09 - Upgrade Staging Magazine Headwalls

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$86	$86	$0	$0	$0	$0	3rd Qtr. FY 1992 - 3rd Qtr. FY 1992

This subproject provided for the procurement and installation of concrete headwall barriers at 22 staging magazines in Zone 4 West.

This project was completed during the 3rd Qtr. FY 1992.

j. Subproject 10 - Isolation Area Fence Enhancement

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$2,337	$2,337	$0	$0	$0	$0	3rd Qtr. FY 1994 - 4th Qtr. FY 1995

This subproject consists of the installation of paved roads adjacent to the isolation area security fence in Zone 12 South. Roads will be provided on both sides of the fence to allow security vehicles to patrol the entire perimeter of the isolation area in a continuous circuit. Existing plant roads will be used where they provide unobstructed travel and are in close proximity to the fence. Paved shoulders and drainage ditches will be provided on each side of the road. Rolling doors will be installed at all ramp crossings. Some sections of ramp and security fence will be relocated to provide sufficient space to construct the roads.

k. Subproject 11 - Protected Area Guard Towers

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$1,994	$1,994	$0	$0	$0	$0	4th Qtr. FY 1994 - 4th Qtr. FY 1995

This subproject consists of the design and construction of four reinforced concrete guard towers, access roads, and associated site work. Two towers will be located in the Pantex Plant's production area, Zone 12 South, and two in the staging area, Zone 4 West.

The station (top) level of the towers will have a floor elevation of approximately 34 feet above the natural grade. Floor area of the station will be approximately 130 square feet enclosed by reinforced concrete walls and roof and bullet-resistant window assemblies. Access to the station level will be through an enclosed stairwell consisting of four levels. Gunports will be provided on all sides at each level. The station level will be equipped with a combination electric heating and cooling unit to maintain an acceptable working environment. Each tower will be equipped with monitoring equipment integrated with the existing PIDAS to provide alarm information to security personnel. A communication system will be provided to allow contact with the Security Command Center and other guard towers.

l. Subproject 12 - Security Command Center Expansion

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$2,033	$2,033	$0	$0	$0	$0	3rd Qtr. FY 1994 - 4th Qtr. FY 1995

The purpose of this subproject is to provide the Security organization with an expanded communication/computer room in order to house the ADP equipment associated with the Electronic Enhancements Subproject.

8. Project Description, Justification and Scope (Continued)

The site selected for the expansion is the north area of the existing command center. The addition will be constructed adjacent to the existing Communication Room and Computer Room. Existing utilities include electrical power, domestic water, fire protection/water, sewer and gas.

This addition will consist of a one room addition, approximately 2,340 gross square feet to be utilized for computer equipment. The room will include a raised computer floor integrated into the existing rooms, electrical power, fire protection (wet pipe and Halon 1301), and emergency air supply and power for computer equipment.

This addition will be constructed of precast concrete panels and will be tornado resistant.

Some of the general types of equipment which will be housed in this additional 2,340 gross square feet are:

- Computers and peripherals
- Uninterruptable power supply (UPS)
- Consoles
- Closed circuit television (CCTV) switches, recorders, and monitors
- Radio gear.

9. Details of Cost Estimate

SUBPROJECTS	ED&I	CONST	STD EQUIP	CONTINGENCY	TEC
a. SNM Component Staging Facility	$ 3,346	$ 17,600	$ 700	$ 654	$ 22,300
a1. SNM Component Staging Facility Backfit	0	2,500	0	0	2,500
b. Protected Area Enhancement	898	1,935	0	17	2,850
c. Electronic Enhancements	15,334	49,631	1,500	7,055	73,520
d. Central Shipping and Receiving Facility	850	4,730	350	0	5,930
e. Perimeter Lighting System	99	170	0	81	350
f. Weapons Tactics and Training Facility	655	3,225	920	700	5,500
g. Physical Training Facility	300	1,868	0	332	2,500
h. Alternate Command Post	319	2,316	0	465	3,100
i. Upgrade Staging Magazine Headwalls	7	79	0	0	86
j. Isolation Area Fence Enhancement	226	1,993	0	118	2,337
k. Protected Area Guard Towers (4 towers)	198	1,679	0	117	1,994
l. Command Center Expansion	298	1,542	0	233	2,033
m. Total project cost	$ 22,490	$ 89,268	$ 3,470	$ 9,772	$125,000

The December 1986 Data Sheet submission of Security Enhancement project consisted of 34 subprojects. Subsequent to the FY 1988 submission, a reassessment of security needs was performed. A number of the smaller subprojects were accomplished by other means, some were combined, and some were no longer required. The number of subprojects has been reduced to 12. The FY 1986 submission with a cost estimate of $127 million included $17.3 million for uncertainties. Subsequent cost estimates have not provided for uncertainties.

1. Title and Location of Project: Security Enhancement, Pantex Plant, Amarillo, Texas (Continued)	2a. Project No.: 88-D-123 2b. Construction Funded

10. Method of Performance

The design services (Studies, Title I, Title II, and partial Title III) will be accomplished by outside A-E firms and will be administered by the Department of Energy or the Operating Contractor (Mason & Hanger-Silas Mason Co., Inc.).

The construction services of this project will be performed by outside construction contractors operating under fixed-price, lump-sum contracts to be awarded on the basis of competitive bids. These contracts will be administered by DOE, Corps of Engineers and/or the Operating Contractor. The construction contractors will perform all work in accordance with the construction documents.

All equipment not specified to be procured and/or installed by the construction contractors will be procured and/or installed by the operating contractor (Mason & Hanger-Silas Mason Co., Inc.).

Construction Management Services will be performed by the Corps of Engineers, DOE, Operating Contractor, and/or by a construction management firm under contract to DOE or the Operating Contractor.

Final connections for new security alarms, fire alarms and specific communications equipment will be accomplished by the Operating Contractor.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.m.)	$ 52,553	$ 34,754	$ 18,239	$ 16,454	$ 3,000	$ 125,000
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 52,553	$ 34,754	$ 18,239	$ 16,454	$ 3,000	$ 125,000
2. Other project costs						
(a) R&D necessary to complete construction	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	250	0	0	0	0	250
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project related costs	4,110	200	250	190	0	4,750
(f) Total other project costs	$ 4,360	$ 200	$ 250	$ 190	$ 0	$ 5,000
(g) Total project costs	$ 56,913	$ 34,954	$ 18,489	$ 16,644	$ 3,000	$ 130,000
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 56,913	$ 34,954	$ 18,489	$ 16,644	$ 3,000	$ 130,000

b. Related annual costs (estimated life of project--30 years)	
1. Facility operating costs	$14,437
2. Facility maintenance and repair costs	6,000
3. Programmatic operating expenses directly related to the facility	375
4. Capital equipment not related to construction but related to the programmatic efforts in the facility	0
5. GPP or other construction related to programmatic effort in the facility	0
6. Utility costs	200
7. Other costs	0
Total related annual costs	$21,012

1. Title and Location of Project: Security Enhancement, Pantex Plant, Amarillo, Texas (Continued)	2a. Project No.: 88-D-123 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item -- Narrative not required.
   (b) PE&D -- None.
   (c) Operating expense funded equipment -- None.
   (d) Inventories -- None.

2. Other project costs
   (a) R&D necessary to complete construction -- None.
   (b) Conceptual design -- Includes conceptual budget estimate, development of design criteria, conceptual designs, preparation of Conceptual Design Report, and current conceptual cost estimate.
   (c) Decontamination and Decommissioning -- None.
   (d) NEPA documentation -- None.
   (e) Other project related funding -- Startup, etc.

b. Related annual costs

Annual costs began with operation of subproject 04 in FY 1992. Total annual costs as shown will begin in FY 1998 when the project is scheduled to be complete. The estimated useful life of the project is 30 years, with regular software maintenance of the security alarm system.

1. Facility operating costs -- Approximately 85 M&O and 3 DOE FTEs are required to operate all facilities, which replace other facilities and equipment.
2. Facility maintenance and repair costs -- Approximately 32 FTEs are required to maintain the facilities and equipment.
3. Programmatic operating expenses directly related to the facility -- The programmatic effort required consists of software updates and related application revisions.
4. Capital equipment not related to construction but related to the programmatic efforts in the facility -- None.
5. GPP or other construction related to programmatic effort in the facility -- Narrative not required.
6. Utility costs -- Narrative not required.
7. Other costs -- None.

FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT

RADIOLOGICAL/NUCLEAR ACCIDENT RESPONSE
$ in Thousands

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Operating Expense	$ 60,954	$ 61,910	$ 68,800	$ 6,890	11%
Capital Equipment	8,100	8,100	7,000	(1,100)	-14%
General Plant Projects	0	0	0	0	0%
Total Operations & Maintenance	$ 69,054	$ 70,010	$ 75,800	$ 5,790	8%
Construction	0	900	3,825	2,925	325%
Total, Radiological/Nuclear Accident Response	$ 69,054	$ 70,910	$ 79,625	$ 8,715	12%

Weapons Stockpile Management
Radiological\Nuclear Accident Response Program

The Radiological\Nuclear Accident Program provides the capability to immediately respond to radiological accidents/incidents worldwide. The assets providing this capability include the: 1) Aerial Measuring System (AMS), 2) Atmospheric Release Advisory Capability (ARAC), 3) Accident Response Group (ARG), 4) Federal Radiological Monitoring and Assessment Center (FRMAC), 5) Nuclear Emergency Search Team (NEST), 6) Radiological Assistance Program (RAP), and 7) Radiation Emergency Assistance Center/Training Site (REAC/TS). The funding for this Program is allocated to fifteen nation-wide Department locations with the Nevada and Albuquerque Operations Offices, and the Los Alamos, Lawrence Livermore, Sandia National Laboratories receiving the majority of the funding.

PROGRAM GOALS:

- Ensure the maintenance of DOE's technical and operational capabilities for responding to radiological accidents/incidents worldwide
- Monitor environmental impacts of radiation at major DOE and other Federal agency facilities
- Support DOE's resolution of accidents and significant incidents worldwide involving nuclear weapons in DOE and DoD custody
- Support DOE's lead role for establishing and managing the FRMAC
- Support the operations, exercise, and maintenance of associates who provide technical assistance in responding to a threat by an individual or group to detonate a nuclear explosive or scatter nuclear material
- Provide for DOE's first responder assistance for initially addressing an accident or incident involving radiological materials
- Provide DOE's medical and health physics support to radiological accidents and incidents resolution

CHANGE FROM FY 1996:

FY 1997 program increase is due to the Office of Emergency Response activities to plan, conduct, and participate in the FY 1997 DOE Lead Federal Agency (LFA) full-field Nuclear Weapon Accident Exercise, and to conduct validation of operational readiness by participating in two interagency overseas deployment exercises.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Participated in a continental United States (CONUS) full-field nuclear incident response exercise - Participated in 3 no-notice outside continental United States (OCONUS) interagency field exercises - Continued to develop and improve equipment to provide successful resolution to a nuclear incident - Hosted the U.S./Canadian Emergency Response Workshop - Participated in the DoD-sponsored weapons accident exercise	- Participate in 4 exercises to maintain and validate operational readiness of the emergency response assets - Complete the design, development, and utilization of specific unique equipment to perform assessments and evaluations of damaged nuclear components - Maintain and operate the DOE/DP aviation assets as FY 1995 - Participate in FY 1996 OCONUS exercise	- Sponsor and participate in the DOE Lead Federal Agency Weapons Accident exercise - Continue to evaluate and validate mission and operational readiness of the DOE emergency response assets - Participate in no-notice call-outs/emergency deployment readiness evaluations and Laboratory specific readiness drills - Complete development of disablement and diagnostic equipment

FY 1995 Continued - Rad\Nuc Accident Response	FY 1996 Continued - Rad\Nuc Accident Response	FY 1997 Continued - Rad\Nuc Accident Response
- Maintained and operated emergency response aviation assets - Maintained 24-hour emergency response capabilities for medical management of radiation accidents	- Complete development and training program for DOE personnel to assume role as LFA	- Continue mission critical projects to provide assessment and containment of damaged weapons and improvised nuclear devices

FUNDING LEVELS:

$60,954	$61,910	$68,800

CAPITAL EQUIPMENTis required to support the Radiological/Nuclear Accident Program. The following are examples of equipment which is needed to support the program: Portable Integrated Video Systems, Mobile Remote Systems, Satellite Communication Systems, Geographic Positioning Systems, Damaged Weapons Containers, Remote Air Samplers, Neutron Radiography, and Gamma Ray Imaging Systems.

CHANGE FROM FY 1996:
The reduced funding level from FY 1996 results from the need for additional operating expenses to support the DOE Lead Federal Agency Weapons Accident Response exercise.

FUNDING LEVELS:

FY 1995	FY 1996	FY 1997
$8,100	$8,100	$7,000

CONSTRUCTION LINE ITEM:

CHANGE FROM FY 1996:
The increase in funding is planned design, procurement, and construction activities for Project **96-D-125, Washington Measurements Operations (WAMO) Facility, Andrews Air Force Base, Camp Springs, Maryland** (TEC $4,725).

FUNDING LEVELS:

FY 1995	FY 1996	FY 1997
$ 0	$ 900	$ 3,825

1. Title and Location of Project: Washington Aerial Measurements Operations (WAMO) Facility
Andrews Air Force Base (AAFB), Camp Springs, Maryland

2a. Project No. 96-D-125
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 15 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $ 4,725
Total Project Cost (TPC) -- $ 4,784

4a. Date Physical Construction Starts: 2nd Qtr. FY 1996

4b. Date Construction Ends: 2nd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $ 4,725
TPC -- $ 4,784

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1996	$ 900	$ 0	$ 900	$ 600
1997	3,825	0	3,825	3,775
1998	0	0	0	350

8. Project Description, Justification and Scope

Construct a secure, two-story building west of Building 1792 at Andrews Air Force Base (AAFB), Camp Springs, Maryland. The first floor of this approximately 22,000-square-foot building will contain alarmed office areas, secure Technical Surveillance Counter Measures (TSCM) working areas, a TSCM training room, a shipping and receiving area, a CRYPTO vault, a secretary/receptionist area, and administrative offices. The upper level will contain a general office area, scientific offices, an emergency response center, a secure conference room, a scientific laboratory, a data-reduction center, and storage areas. This project will also provide the necessary power, water, and sever hookups. The facility will contain heating, ventilation, and air conditioning (HVAC) units; telecommunications hardware; fire and security alarm systems; and an approved fire-control system for both levels. Work includes relocation and installation of an existing nearby 20-foot by 20-foot pre-engineered relocatable building.

FY 1997 funds will be used for design, procurement and construction activities.

Current space is inadequate to meet programmatic requirements assigned. The Washington Aerial Measurements Operators (WAMO) Facility is an emergency response organization with a real response time of two hours. This organization is the initial DOE on-scene response for over 40 percent of the United States (where 84 percent of the nation's nuclear facilities are located) and for Off-Continent United States (OCONUS). Required resources are inadequately postured for rapid deployment due to space limitations and inadequate facilities. Desired personnel and equipment cannot be added due to a lack of space. Equipment clutter creates daily safety risks, and time is lost because frequently used equipment and tools cannot be readily accessed.

1. Title and Location of Project: Washington Aerial Measurements Operations (WAMO) Facility Andrews Air Force Base (AAFB), Camp Springs, Maryland (Continued)	2a. Project No. 96-D-125 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Although the WAMO Facility has had a net increase of 23 personnel, 1 aircraft, 4 vehicles, and over 600 items of accountable equipment, there has been no accompanying increase in space nor major facility modifications. Professional personnel are working in 50-square-foot cubicles. Because equipment must be stacked and randomly stored as unoccupied space permits, organized rapid emergency deployment is both extremely difficult and frequently hazardous. Only 25 percent of the WAMO Facility personnel can occupy the one existing conference room simultaneously; consequently, mandatory training must be repeated four and five times. Functional integrity of the organization has become haphazard because common functions cannot be grouped together due to space limitations.

WAMO is an organization created and strategically positioned to provide DOE with timely and effective emergency response in the eastern USA and overseas. If this initiative is deferred or delayed, the desired emergency response service will not be possible. The sole limiting factor to attaining the essential response time is the inadequacies and inefficiencies of the existing facility. All other avenues for acquiring space have been explored and rejected.

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 537
(1) Engineering design and inspection at approximately 12.2 percent of construction costs	$ 416	
(2) Construction management costs	0	
(3) Project management at 3.5 percent of construction costs	121	
b. Land and land rights		0
c. Construction costs		3,410
1. Improvements to land	79	
2. Buildings	3,108	
3. Other structures	11	
4. Utilities	126	
5. Demolition & Removal	86	
d. Standard equipment		14
e. Major computer items		127
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		4,088
i. Contingencies at approximately 15.6 percent of above costs.		637
j. Total line item cost (Section 11.a.1.(a))		$ 4,725
k. LESS: Non-Federal Contribution		0
l. Net Federal total estimated cost (TEC)		$ 4,725

Note: Total estimated cost (TEC) is based upon conceptual design criteria.

10. Method of Performance

Design and inspection will be performed under a negotiated architect-engineer (A&E) contract with a local firm in the AAFB area. Construction and procurement will be performed under a negotiated fixed-price contract awarded on the basis of competitive bidding.

1. Title and Location of Project: Washington Aerial Measurements Operations (WAMO) Facility
Andrews Air force Base (AAFB), Camp Springs, Maryland (Continued)

2a. Project No. 96-D-125
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1996	FY 1997	FY 1998	Total
a. Total project costs					
1. Total facility costs					
(a) Line item (Section 9.j.)	$ 0	$ 600	$ 3,775	$ 350	$ 4,725
(b) Plant, Engineering and Design (PE&D)	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0
(d) Inventories	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 600	$ 3,775	$ 350	$ 4,725
2. Other project costs					
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	50	0	0	0	50
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0
(d) NEPA documentation costs	9	0	0	0	9
(e) Other project related costs	0	0	0	0	0
(f) Total other project costs	$ 0	$ 0	$ 0	$ 0	$ 0
(g) Total project costs	$ 59	$ 600	$ 3,775	$ 350	$ 4,784
(h) LESS: Non-Federal contribution	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 59	$ 600	$ 3,775	$ 350	$ 4,784

b. Related annual costs (estimated life of project--40 years)	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual costs	$ 0

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1. Title and Location of Project:	Washington Aerial Measurements Operations (WAMO) Facility Andrews Air Force Base (AAFB), Camp Springs, Maryland (Continued)	2a. Project No. 96-D-125 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- will provide sufficient funds to construct this facility.
      (b) PE&D -- None.
      (c) Operating expense funded equipment -- None.
      (d) Inventories -- None.

   2. Other project costs
      (a) R&D necessary to complete construction -- None.
      (b) Conceptual design -- A conceptual design cost of $40,000 was necessary to develop a budget-quality cost estimate and construction schedule in FY 1990; an additional cost of $5,000 was necessary in FY 1992 to update and reissue the previous conceptual design report; $5,000 was necessary for miscellaneous budget documents.
      (c) Decontamination and Decommissioning (D&D) -- None.
      (d) NEPA documentation -- $8,700 for Environmental Evaluation.
      (e) Other project related costs -- None.

b. Related annual costs
   1. Facility operating costs -- This activity covers all staffing activities.
   2. Facility maintenance and repair costs -- $0 per year.
   3. Programmatic operating expenses directly related to the facility -- $0 per year.
   4. Capital equipment not related to construction but related to the programmatic effort in the facility -- $0 per year.
   5. GPP or other construction related to the programmatic effort in the facility -- None.
   6. Utility costs -- None.
   7. Other costs -- None.

FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT

RECONFIGURATION
$ in Thousands

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Operating Expense	$ 94,271	$ 80,000	$ 25,000	$ (55,000)	-69%
Capital Equipment	0	0	0	0	0%
General Plant Projects	0	0	0	0	0%
Total Operations & Maintenance	$ 94,271	$ 80,000	$ 25,000	$ (55,000)	-69%
Construction	58,000	41,065	14,487	(26,578)	-65%
Total, Reconfiguration	$ 152,271	$ 121,065	$ 39,487	$ (81,578)	-67%

Weapons Stockpile Management
Reconfiguration Program

The Reconfiguration Program (Nonnuclear) supports the transfer and consolidation of 25 activities from the Mound, Pinellas, and Rocky Flats Plants to the Kansas City Plant, Savannah River Site, LANL, and SNL. This includes the transfer and the requalification of 25 technologies and processes at the various receiver sites.

PROGRAM GOALS:
- Modify or upgrade existing facilities at the Receiver Sites
-Transfer or procure capital equipment for the Receiver Sites
-Requalify Activities at the Receiver Sites

CHANGE FROM FY 1996:
FY 1997 program decrease is due to program progression and the completion of the majority of the transfer activities required to reconfigure the weapons complex.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Supported the transfer of remaining activities and the requalification of production capability at the receiver sites. - Initiated requalification activities for the following technology transfers: mechanical assemblies at KC; neutron generators at SNL; and gas transfer systems, nonnuclear acorn and reservoir surveillance operations at SR. - Completed construction activities for lightning arrestor connectors, nonnuclear acorn, and reservoir fabrication at KC; and miliwatt generator heat sources at SNL.	- Support the transfer of remaining activities and the requalification of production capability at the receiver sites. - Completed requalification activities for lightning arrestor connectors at KC and miliwatt generator heat sources at SNL. Initiated requalification activities for thermal batteries at SNL. - Completed construction activities for neutron detectors, nuclear grade steel , optoelectronics, safe secure trailers, support pads, and transducers at KC; and neutron generators and thermal batteries at SNL.	- Support the transfer of remaining activities and the requalification of production capability at the sites. - Initiate requalification for flats cable products at KC and complete requalification activities for neutron detectors, nonnuclear acorn and support pads at KC. - Complete construction activities for flat cable products, mechanical assemblies and roundwire detonators at KC; beryllium technology and pit support at LANL; and gas transfer systems and reservoirs surveillance operations at SR.

FUNDING LEVELS:

$94,271	$80,000	$25,000

CONSTRUCTION LINE ITEM:

CHANGE FROM FY 1996:
The change from FY 1996 under Project **93-D-123, Nonnuclear Reconfiguration, Complex 21, Various Locations** (TEC:$163,860) results from program progression and the completion of the majority of construction activities required to reconfigure the weapons complex.

The FY 1997 funding will be used to support the following subprojects: ICF Target Loading, Neutron Tube Target Loading and Beryllium Technology at the Los Alamos National Laboratory, and Gas Transfer Systems and Reservoir Surveillance Operations at the Savannah River Site.

FUNDING LEVELS:

FY 1995	FY 1996	FY 1997
$58,000	$41,065	$14,487

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Stockpile Management

1. Title and Location of Project: Nonnuclear Reconfiguration, Complex-21, Various Locations	2a. Project No.: 93-D-123 2b. Construction Funded

SIGNIFICANT CHANGES

- TEC changed from $166,552,000 to $163,860,000 resulting from the use of $2,692,000 in prior year balances to offset the FY 1996 Weapons Activities appropriation.
- Construction end date changed from 1st Qtr. FY 2001 to 3rd Qtr. FY 1998.
- Neutron Tube Target Loading: TEC increased from $4,115,000 to $12,799,000. Initial plans called for relocation and reestablishment of this activity at TA-21. Since that time, DOE has directed that all tritium related work be phased out of TA-21 due to operational and safety concerns. Subsequently, an interim plan, proposed consolidation of the NTTL activities in the Weapon Engineering Tritium Facility (WETF) at TA-16, which also supports tritium operations. This plan has now been fully documented and will require additional ES&H upgrades to existing TA-16 facilities. The TEC increase incorporates the change in location and required upgrades to assure appropriate ES&H safeguards.
- Pit Support Function: TEC decreased from $4,233,000 to $2,145,000. TEC decrease due to a reassessment of donor and receiver site capital equipment transfer costs and requirements.
- Beryllium Technology: TEC increased from $10,836,000 to $12,125,000. TEC increase due to reassessment of cost estimate.
- Gas Transfer Systems and Reservoir Surveillance Operations: TEC decreased from $42,905,000 (cumulative) to $36,950,000. TEC decrease due to DOE Independent Cost Review; realignment of costs to conform with AL project WBS elements; better utilization of existing facilities; reduction in number of Bell Jars; deletion of mezzanine and mods to HVAC and other support systems in RTF; developmental Tritium loading to be accomplished by modifying existing loading line rather than upgrading Loading Line 6; and deletion of the Component Development Lab (735-11A).
- High Power Detonators: SNL/N.M. TEC decreased from $849,000 to $649,000; LANL TEC decreased from $4,750,000 to $3,320,000, and LLNL TEC decreased from $450,000 to $150,000. TEC decrease results from mission requirement and estimate refinement.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

WEAPONS ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Stockpile Management

1. Title and Location of Project: Nonnuclear Reconfiguration, Complex-21, Various Locations

2a. Project No.: 93-D-123
2b. Construction Funded

3a. Date A-E Work Initiated: 3rd Qtr. FY 1993

3b. A-E Work (Title I & II) Duration: Ongoing

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $166,552
Total Project Cost (TPC) -- $200,755

4a. Date Physical Construction Starts: 2nd Qtr. FY 1994

4b. Date Construction Ends: 3rd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $163,860
TPC -- $198,063

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs a/
1993	$ 26,000	$ 0	$ 26,000	$ 171
1994	25,000	0	25,000	12,309
1995	58,000	0	58,000	39,599
1996	41,065	(2,692) b/	38,373	61,154
1997	14,487	0	14,487	48,627
1998	2,000	0	2,000	2,000

a/ Utilization of FY 1993 and FY 1994 funds was impeded due to unexpected events dramatically affecting project execution and, thereby, resulting in significant carryover and reutilization of FY 1993 appropriations in FY 1994 and FY 1995. Planned activities were significantly delayed and altered due to delays in finalizing the NEPA FONSI, mission changes due to the June 1992 Bush-Yeltsin Agreement (START II Treaty of 1/93), as well as supplemental Congressional studies, requested prior to utilization of funds and associated with dual need equipment.

b/ $2,692,000 used for FY 96 budget reduction.

1. Title and Location of Project: Nonnuclear Reconfiguration, Complex-21, Various Locations	2a. Project No.: 93-D-123 2b. Construction Funded

8. Project Description, Justification, and Scope

As a result of new mission requirements, the Nuclear Reconfiguration activities have been deleted from this project.

Due to mission downsizing, the construction end date changed from 1st Qtr FY 2001 to 3rd Qtr FY 1998.

"Complex-21" is the Department of Energy's designation for a reconfigured nuclear weapons complex which will provide the nuclear weapons to support the Nation's nuclear deterrent policy through the middle of the next century. The mission of the Nuclear Weapons Complex is now focused on ensuring the viability of the enduring nuclear weapons stockpile. This requires the DOE to support four major activities: (1) limited life component exchanges; (2) the Stockpile Evaluation Program: (3) repairing or replacing weapons components as needed; and (4) upgrading to improve stockpile safety, security, and reliability.

The Nonnuclear Reconfiguration Project involves consolidating the activities from three donor sites, the Mound, Pinellas, and Rocky Flats plants, into five receiver sites; the Kansas City Plant, the Sandia National Laboratories/New Mexico, the Los Alamos National Laboratory, Lawrence Livermore National Laboratory, and the Savannah River Site.

The current Complex comprises 11 government-owned, contractor-operated major facilities, distributed over 10 states. Many of them were constructed 30-40 years ago, were sized to meet programmatic workloads substantially larger and more diverse than those expected in the future, and were designed and built to standards and regulations very different and less stringent than those of today.

In January 1991, the then Secretary of Energy announced that the Department would prepare a programmatic environmental impact statement (PEIS) examining alternatives for the reconfiguration of the nuclear weapons complex (the Complex). The framework for the Reconfiguration PEIS was described in the January 1991 Nuclear Weapons Complex Reconfiguration Study, a detailed examination of alternatives for the future Complex. Because of the significant changes in the world since January 1991, especially with regard to projected future requirements for the United States' nuclear weapons stockpile, the Department has concluded that the framework described in the Reconfiguration Study does not exist today. Contributing factors to this conclusion include public comment at the September-October 1993 PEIS scoping meetings, the fact that no new nuclear weapons production is required for the foreseeable future, budget constraints, and the Department's decision to prepare a separate PEIS on Storage and Disposition of Weapons-Usable Fissile Nuclear Materials. As a result of these changed circumstances, the Department separated the Reconfiguration PEIS into two separate PEIS documents: a Tritium Supply and Recycling PEIS which was completed in October 1995, and a Stockpile Stewardship and Management PEIS to be completed in December 1996.

Consistent with the Secretary of Energy's Record of Decision (ROD), announced on December 6, 1995, the Department is proceeding with a dual-track strategy to assure a future tritium source. One track will explore the purchase of an operating or partially complete Commerical Light Water Reactor (CLWR). The second track will be to design, build, and test critical components of an accelerator system for production of tritium (APT). Both the CLWR and APT options will be developed through 1998 before a down-selection of the preferred technology is undertaken. As part of the ROD, if an APT facility is built, it will be located at the Savannah River Site (SRS), and an extraction facility for CLWR targets would also be built at SRS.

Consolidation of the nonnuclear manufacturing is separate from the above PEIS efforts and was evaluated separately utilizing an Environmental Assessment which resulted in a Finding of No Significant Impact (FONSI) in September 1993.

The Nonnuclear Reconfiguration project will consolidate the nonnuclear portion of the nuclear weapons production complex.

1. Title and Location of Project: Nonnuclear Reconfiguration, Complex-21, Various Locations	2a. Project No.: 93-D-123 2b. Construction Funded

8. Project Description, Justification, and Scope (continued)

An Environmental Assessment (EA) for reconfiguration of the nonnuclear manufacturing facilities was developed separately from the PEIS. It was distributed to the affected states and Indian Tribes for pre-approval review and comment in December 1992. In early 1993, the Cost Effectiveness Report on nonnuclear reconfiguration was submitted to Congress in response to the requirement contained in the Energy and Water Development Appropriations Act for FY 1993 and the National Defense Authorization Act for FY 1993. Three independent consultants were appointed by Secretary O'Leary to evaluate the findings and analysis that supported the cost effectiveness certifications. Their reports were delivered to the Secretary on May 24, 1993, and concluded that the proposed reconfiguration was cost effective and reasonable and that it would not increase the technological environmental, safety, or health risks associated with Departmental facilities. On May 27, 1993, the Secretary announced her decision to proceed with the Environmental Assessment and to publish a proposed Finding of No Significant Impact (FONSI) in the Federal Register, with implementation of the preferred plan to occur after the two events had taken place. A FONSI was issued for the project on September 8, 1993. The plan calls for the consolidation of most nonnuclear activities at the KCP with a few activities assigned to the weapons laboratories to preserve technology. Tritium work presently done at the Mound Plant would be relocated to the Savannah River Site. Reconfiguration of the nonnuclear weapons manufacturing activities is needed to maintain key technologies associated with the design and manufacture of nonnuclear weapons components required to support the enduring stockpile. The collocation of these technologies provides the mechanism to exercise and retain the special skill base necessary to produce and test replacement components.

The Nonnuclear Reconfiguration Project will transfer production operations from Mound Plant (MD), Pinellas Plant (PP), and Rocky Flats Plant (RF) to Kansas City Plant (KCP), Sandia National Laboratories (SNL), Savannah River Site (SR), and Los Alamos National Laboratories (LANL).

SNL will be receiving the following product lines: Neutron Generators Assembly, Milliwatt Heat Source Surveillance (MWHS), High Power Detonators, and Thermal Battery Technologies). SNL will assume surveillance activities for 28 SNL designed components.

KC will be receiving the following product lines: Flat Cable Products, Mechanical Assemblies, Roundwire Detonator Cables/Plastic Headers, Nonnuclear ACORN, Support Pads, Optoelectronics Assemblies, Neutron Detectors, Lightning Arrestor Connectors, Transducers, Reservoir Assemblies and Testing, Nuclear Grade Steel, Safe Secure Trailers, Metrology Services, Sitewide Tasks/Miscellaneous Equipment and Document Storage.

LANL will be receiving the following product lines: Beryllium Technology, Pit Support, Neutron Tube Target Loading, High Power Detonators, Flat Cable Products, and ICF Target Loading. LANL will assume surveillance activities for 13 LANL designed components.

LLNL will assume surveillance activities for 12 LLNL designed components.

SR will receive the following product lines: Gas Transfer Systems, and Reservoir Surveillance Operations.

Incorporation of these product lines intu KC, SNL, LANL, LLNL, and SR facilities will be accomplished by rearranging and upgrading space within existing buildings, transferring equipment from the donor sites, purchasing new product equipment, installation of some of the transferred and new equipment and associated support systems (record storage, etc.). Due to production schedules and other time constraints interim equipment staging and testing may precede final equipment placement and the capital interim activities associated with final placement.

The availability of adequate facilities, the ability to rearrange the existing manufacturing buildings, experience in a variety of product and procurement activities, minimal environmental concerns, and an excellent technical personnel base positions the complex to fulfill their role in nonnuclear manufacturing. To consolidate nonnuclear manufacturing at these locations, funding is required to support construction, rearrangements, procurement, transfer of existing equipment, and installation, as required to accommodate transferred product.

8. Project Description, Justification, and Scope (Continued)

Technology Total Cost includes "donor" and "receiver" capitalized cost at all locations discussed below.

SANDIA NATIONAL LABORATORIES - PRODUCTS TRANSFERRED FROM PINELLAS AND MOUND PLANT: TEC - $54,119,000

Subproject 01: Neutron Generators Facilities (NGF): TEC - $49,591,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 49,591	$ 6,176	$ 29,573	$ 13,842	$ 0	$ 0	3rd Qtr. FY 1994 - 2nd Qtr. FY 1996

TEC decreased from $51,731,000 to $49,591,000. TEC decrease results from mission requirement and estimate refinement.

NGF will have a prototyping, production, and delivery capability for neutron generators with initial shipments beginning in FY 1999. The facility will be sized to meet current Planning and Production Directive schedules with a single shift.

The design strategy is to use and renovate existing buildings to accommodate the functional requirements of the NGF. Eight existing Buildings (870, 842, 860, 878, 882, 891, 6730, and 905) have been identified as part of the NGF. All buildings are located in Tech Area 1, except 6730 and 905; and all buildings are located within a "limited access" area. The primary building for NGF (Building 870) will be renovated and utilized to satisfy the NGF design and prototyping requirements. The scope of work for Building 870 includes demolition and reconstruction of the entire north wing. Portions of the other existing buildings identified above will also be utilized by the NGF although only minor construction and equipment relocations will be necessary.

Subproject 02: Cap Assemblies: TEC - $1,353,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 1,353	$ 1,353	$ 0	$ 0	$ 0	$ 0	Project terminated

Subproject 03: Milliwatt Heat Source Surveillance and Thermal Battery Technologies: TEC - $2,526,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 2,526	$ 611	$ 1,732	$ 183	$ 0	$ 0	3rd Qtr. FY 1995 - 3rd Qtr. FY 1996

TEC decreased from $3,078,000 to $2,526,000. TEC decrease results from mission requirement and estimate refinement.

The design strategy is to use and renovate a portion of Building 894, to accommodate the functional requirements of the Power Sources (PS) Facility. A portion of Building 894 is currently being used for the thermal battery facility. Approximately 6,125 square feet of floor space adjacent to the existing PS Facility will undergo a complete renovation. Total building square footage required is approximately 9,200 square feet, of which 8,975 square feet is existing.

8. Project Description, Justification, and Scope (continued)

Site work will include the removal of the large argon and nitrogen tanks and associated concrete equipment pads, concrete steps and landings, gas bottle storage area, and vacuum pump. A new gas bottle storage facility will be constructed along with a new concrete loading dock and stairs, concrete ramps, and hazardous materials storage room. Building will be designed with all applicable codes and standards.

Subproject 04: High Power Detonators: SNL/N.M.: TEC - $649,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 649	$ 0	$ 649	$ 0	$ 0	$ 0	4th Qtr. FY 1995 - 4th Qtr. FY 1996

TEC decreased from $849,000 to $649,000. TEC decrease results from mission requirement and estimate refinement.

The transfer of HE Component Surveillance activities from Mound is documented in the High Power Detonator Activity Transfer Plan. The SNL/N.M.-specific HE Component Surveillance activities are directly linked to the LANL High Power Detonator activity transfer. Surveillance activities involve twenty-eight SNL/N.M. components. A HQ programmatic decision has been made to have the surveillance activities reside at the design laboratory responsible for each specific component. Incorporation of this product line will be accomplished by rearranging and upgrading space within existing facilities, and purchasing new product equipment.

LAWRENCE LIVERMORE NATIONAL LABORATORY - PRODUCTS FROM MOUND: TEC - $150,000

Subproject 05: High Power Detonators: LLNL: TEC - $150,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 150	$ 100	$ 50	$ 0	$ 0	$ 0	4th Qtr. FY 1995 - 4th Qtr. FY 1996

TEC decreased from $450,000 to $150,000. TEC decrease results from mission requirement and estimate refinemnent.

The transfer of HE Component Surveillance activities from Mound is documented in the High Power Detonator Activity Transfer Plan. The LLNL-specific HE Component Surveillance activities are directly linked to the LANL High Power Detonator activity transfer. Surveillance activities involve twelve LLNL components. A HQ programmatic decision has been made to have the surveillance activities reside at the design laboratory responsible for each specific component. Incorporation of this product line will be accomplished by rearranging and upgrading space within existing facilities, and purchasing new product equipment.

KANSAS CITY PLANT - PRODUCTS TRANSFERRED FROM MOUND PLANT: TEC - $6,945,000

Subproject 06: Flat Cable Products: TEC - $555,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 555	$ 555	$ 0	$ 0	$ 0	$ 0	4th Qtr. FY 1994 - 2nd Qtr. FY 1996

An approximate 1,000 square feet of space is required for the Flat Cable technology that will be located within the Main Manufacturing

8. Project Description, Justification, and Scope (continued)

Building. The Project rearranges an existing department and builds a new wall to separate this department from the Flat Cables area. Intermediate partitions, some lights, sprinkler heads, utility piping and duct-work will be relocated or added. Procurement will consist of the transfer of donor site equipment.

Facility space will be provided in vacant areas to allow initiation of development work and staging of equipment prior to the preparation of final facility space. This is required to move the technology prior to the cessation of donor site activities. The KCP will be responsible for cable production and PVD bridge.

Subproject 07: Mechanical Assemblies: TEC - $1,195,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 1,195	$ 460	$ 735	$ 0	$ 0	$ 0	2nd Qtr. FY 1994 - 4th Qtr. FY 1995

An approximate 2,200 square foot area is required for this technology. Modification to an existing Class 100,000, clean room is required to provide space for some of the transferred MD equipment. Procurement consists of deionization grids which will be installed on existing clean benches. Rearrangements are also required within the existing Class 100,000, clean room and a laser welder room to establish this capability. The rearrangements consist of relocating existing equipment and modification of utilities.

Subproject 08: Roundwire Detonator Cables/Plastic Headers: TEC - $655,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 655	$ 655	$ 0	$ 0	$ 0	$ 0	4th Qtr. FY 1994 - 2nd Qtr. FY 1996

An approximate area of 1,000 square feet is required for this technology. There is no construction required to establish this capability. Procurement consists of shape and slot machines, resistance welder, ultrasonic welder, vacuum oven, and portable desiccator chamber. Minor rearrangements are required to establish transferred equipment on existing workbenches with existing departments at KC.

Subproject 09: Nonnuclear ACORN: TEC - $4,540,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 4,540	$ 2,045	$ 2,495	$ 0	$ 0	$ 0	2nd Qtr. FY 1994 - 4th Qtr. FY 1995

An approximate area of 1,500 square feet is required for this technology. Facility space will be provided in vacant factory areas to allow initiation of development work and staging of equipment prior to the preparation of final facility space. This is required to move the technology prior to the cessation of donor site activities. Equipment to be procured includes: assembly equipment, glove boxes, ultrasonic cleaner, vacuum bake station, welder, flow tester, and lab equipment. Area rearrangement consists primarily of relocation of equipment, and modification to utilities.

8. Project Description, Justification, and Scope (continued)

KANSAS CITY PLANT - PRODUCTS TRANSFERRED FROM PINELLAS PLANT: TEC - $1,587,000

Subproject 10: Lithium Ambient Batteries (LAMB): TEC - $0

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	Deleted from KC Mission

Subproject 11: Support Pads: TEC - $320,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 320	$ 105	$ 215	$ 0	$ 0	$ 0	1st Qtr. FY 1995 - 3rd Qtr. FY 1995

An approximate area of 460 square feet is required for this technology. There will be no construction activity or procurement of new capital equipment required to establish this capability at KC. The Support Pads will be molded/foamed within the existing foam molding department. Minor rearrangement will be required within an existing welding department to transfer the flame spray process.

Subproject 12: Optoelectronics Assemblies: TEC - $180,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 180	$ 0	$ 180	$ 0	$ 0	$ 0	3rd Qtr. FY 1995 - 2nd Qtr. FY 1996

An approximate area of 800 square feet is required for this technology. Work will consist of only obtaining from the donor site and storing the transferred equipment at the Kansas City Plant.

Subproject 13: Neutron Detectors: TEC - $57,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 57	$ 27	$ 30	$ 0	$ 0	$ 0	2nd Qtr. FY 1994 - 1st Qtr. FY 1996

An approximate area of 700 square feet is required for this technology. Transferred equipment and utilities will be rearranged as required to install transferred equipment.

8. Project Description, Justification, and Scope (continued)

Subproject 14: Lightning Arrestor Connectors; TEC - $940,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 940	$ 685	$ 255	$ 0	$ 0	$ 0	4th Qtr. FY 1994 - 3rd Qtr. FY 1995

An approximate area of 3,300 square feet is required for this technology. Construction includes building a 300 square foot Lead Titinate room for the handling of lead in the Materials Engineering Laboratory. A 250 square foot Class 100 clean room will be purchased and installed to support LAC production equipment located in the Electrical Products Manufacturing Building (EPMB). Lead Titinate equipment will not be transferred to KC due to lead contamination. New equipment will be procured for Lead Titinate including a flammable cabinet, rolling machine, hooded sink, shelves, ovens, benches and hoods. Equipment presently occupying the project locations will be moved or excessed.

Subproject 15: Transducers; TEC - $90,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 90	$ 90	$ 0	$ 0	$ 0	$ 0	1st Qtr. FY 1995 - 3rd Qtr. FY 1995

An approximate area of 500 square feet is required for this technology. There will be no construction activity required to establish this capability at KC. A rearrangement of an existing KC 3-bay tester, a 2-bay tester, two single bay testers, one desk, and existing sputtering equipment will be required to provide space for the equipment relocated from PP and equipment being purchased.

KANSAS CITY PLANT - PRODUCTS TRANSFERRED FROM ROCKY FLATS PLANT: TEC - $29,271,000

Subproject 16; Reservoir Assemblies and Testing; TEC - $17,163,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 17,163	$ 13,549	$ 2,189	$ 1,425	$ 0	$ 0	2nd Qtr. FY 1994 - 2nd Qtr. FY 1997

An approximate area of 29,700 square feet is required for this technology. Approximately 1,600 square feet containing wood block flooring will be removed and treated as hazardous waste. The site preparation work for this facility will include the demolition and removal of metal clad gypsum board and coreboard partitions and removal of steel mesh crib security fencing. The concrete factory floor in the Heavy Machining Department will also be removed and replaced. New construction will include installation of metal stud and gypsum board partitions and enclosures, acoustical ceilings, resilient flooring, and hollow metal doors and frames. The new construction will also include a 12-inch thick reinforced concrete factory floor in part of the area, structural steel framing for equipment platforms, bridge cranes, and reinforced concrete containment sumps to capture effluent from cleaning lines.

The metal stud and gypsum board construction will provide rooms and partition walls to house coordinate measuring machines, general inspection area, cleaning lines, ancillary machining equipment, a metallurgical lab, and a swaging operation. Procurement will consist of a laser marker, engine lathe, tool presetter, crush grinder, rotary swager, tube bender, electro-chemical marker, pinch welder, heat oven, vacuum braze furnace, ultrasonic testing equipment, machining accessories, X-ray system, tube testers, leak testers, and miscellaneous equipment.

8. Project Description, Justification, and Scope (continued)

Facility space will be provided in vacant factory areas to allow initiation of development work and staging of equipment prior to the preparation of final facility space. This is required to move the technology prior to the cessation of donor site activities.

Subproject 17: Nuclear Grade Steel/Oxnard; TEC - $1,159,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 1,159	$ 540	$ 619	$ 0	$ 0	$ 0	3rd Qtr. FY 1994 - 1st Qtr. FY 1996

An approximate area of 8,800 square feet is required for this technology. Installation of a bridge crane is required. Site work involved will require removal and replacement of the factory floor to accommodate the capability. Excavation and compaction of the footing sub-grade will also be required. Procurement will consist of a band saw, tube scanner, bar tester, and storage racks. Rearrangement within the existing vacant area will consist of modifications to existing utility systems. Facility space will be provided in vacant areas to allow for interim storage of steel because of earlier closure date at the donor site.

Subproject 18: Safe Secure Trailers; TEC - $10,949,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 10,949	$ 9,428	$ 1,521	$ 0	$ 0	$ 0	3rd Qtr. FY 1994 - 4th Qtr. FY 1996

An approximate area of 29,400 square feet is required for this technology. The Forge and Casting building will be modified to accommodate trailer production. An existing concrete masonry unit wall will be demolished. Five ton capacity bridge cranes with supporting steel structures will be installed. Paint booth and other processes will require new exhaust systems. An office and a foam/lytherm application area will be constructed. A basement area will be renovated to provide restrooms, break area, and locker room. An 8 foot partitioned area will be constructed for handling explosives. The area will be provided with the necessary alarms and hardware for a limited access area. Equipment to be procured includes welders, lifts, cutting equipment, sheet metal equipment, miscellaneous small tools for trailer work, office furniture and locker room accessories. Approximately 13,000 square feet of storage racks and contents will be relocated to provide space for Safe Secure Trailers.

Subproject 19: Weapon Trainer Shop; TEC - $0

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	Deleted from KC Mission

8. Project Description, Justification, and Scope (continued)

Subproject 20: Metrology Services: TEC - $0

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	Existing facilities and equipment at KC will be used.

There are no facilities or equipment required to transfer Metrology Services to KC. Existing facilities and equipment at KC will be used. There are no costs associated with the transfer of this technology.

KANSAS CITY PLANT - SITEWIDE TASKS: TEC - $3,249,000

Subproject 21: Sitewide Tasks/Miscellaneous Equipment and Document Stores: TEC - $3,249,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 3,249	$ 293	$ 851	$ 2,105	$ 0	$ 0	4th Qtr. FY 1994 - 3rd Qtr. FY 1997

Miscellaneous Equipment: In addition to the items identified for each technology to be transferred to the KCP, there are many items of miscellaneous equipment required. These multiple use items are required to produce the additional products transferred to the KCP but cannot be identified against a specific technology.

Document Storage: Documentation on existing products at donor sites will be relocated to the KCP and may require the preparation of suitable space.

LOS ALAMOS NATIONAL LABORATORY - PRODUCTS TRANSFERRED FROM MOUND PLANT: TEC - $4,520,000

Subproject 22: High Power Detonators and Flat Cable Products: TEC - $3,320,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 3,320	$ 1,850	$ 1,139	$ 331	$ 0	$ 0	4th Qtr. FY 1994 - 4th Qtr. FY 1999

TEC decreased from $4,750,000 to $3,320,000. TEC decrease results form mission requirement and estimate refinement.

To support the transfer of High Power Detonator activities to LANL, minor modifications to Building 16-340 and an explosive storage magazine will be made. The required process equipment will be relocated from MD where practical and the balance will be acquired through new procurement.

LANL will be responsible for fabricating stated bridges, bonding of bridges and cables, and test fire. No additional floor space will be required, only minor modifications to existing facilities is required. These mission assignments were transferred from the KC Flat Cable Products mission scope.

1. Title and Location of Project: Nonnuclear Reconfiguration, Complex-21, Various Locations	2a. Project No.: 93-D-123 2b. Construction Funded

8. Project Description, Justification, and Scope (continued)

Existing space at TA-16 will be utilized to receive the transfer of the technology from Mound.

Subproject 23: ICF Target Loading; TEC - $1,200,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 1,200	$ 0	$ 300	$ 500	$ 400	$ 0	3rd Qtr. FY 1995 - 4th Qtr. FY 1997

LOS ALAMOS NATIONAL LABORATORY - PRODUCTS TRANSFERRED FROM PINELLAS PLANT: TEC - $12,799,000

Subproject 24: Neutron Tube Target Loading; TEC - $12,799,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 12,799	$ 2,713	$ 5,239	$ 2,847	$ 2,000	$ 0	2nd Qtr. FY 1994 - 1st Qtr. FY 1997

TEC increased from $4,115,000 to $12,799,000. Initial plans called for relocation and reestablishment of this activity at TA-21. Since that time, DOE has directed that all tritium related work be phased out of TA-21 due to operational and safety concerns. Subsequently, an interim plan, proposed consolidation of the NTTL activities in the Weapon Engineering Tritium Facility (WETF) at TA-16, which also supports tritium operations. This plan has now been fully documented and will require additional ES&H upgrades to existing TA-16 facilities. The TEC increase incorporates the change in location and required upgrades to assure appropriate ES&H safeguards.

Building 209 at TA-21 will be used as the location of the interim facility for the Neutron Tube Target Loading technology program at the LANL. Existing space at TA-16 will be utilized as the permanent location for the NTTL technology. The interim facility is required to move the technology prior to the cessation of donor site activities. The consolidation activities include Tritium Target Loading and Target Loading Verification. The loading of neutron tube targets will be accomplished by installing a glovebox line in Building 209. A small portion of an existing concrete frame structure will be modified to accept this glovebox line. The glovebox line will house a target loader, vacuum pump for the loader, and will have ancillary equipment consisting of a mass spectrometer, calorimeter, film dissolution station, thermal desorption with fume hood, and related piping, power, instrumentation, controls, etc.

FY 1997 funds will be used to complete construction and installation.

LOS ALAMOS NATIONAL LABORATORY - PRODUCTS TRANSFERRED FROM ROCKY FLATS PLANT: TEC - $14,270,000

Subproject 25: Pit Support Function; TEC - $2,145,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 2,145	$ 995	$ 1,150	$ 0	$ 0	$ 0	2nd Qtr. FY 1996 - 3rd Qtr. FY 1997

TEC decreased from $4,233,000 to $2,145,000. TEC decrease due to a reassessment of donor and receiver site capital equipment transfer costs and requirements.

Building 66 at the TA-3/SIGMA site will be upgraded to accommodate the consolidation of the Pit Support technology maintenance program to be transferred from RF to LANL. Relocation of some equipment and pertinent records to continue to support the Pit Support mission is required.

8. Project Description, Justification, and Scope (continued)

Subproject 26: Beryllium Technology: TEC - $12,125,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 12,125	$ 815	$ 1,773	$ 3,840	$ 5,697	$ 0	3rd Qtr. FY 1997 - 3rd Qtr. FY 1997

TEC increased from $10,836,000 to $12,125,000. TEC increase due to reassessment of cost estimate.

Building 141 at the TA-3 will be upgraded to accommodate the consolidation of the Beryllium Technology maintenance program to be transferred from RF to LANL. It is necessary to provide for continued vendor support and back-up capability to maintain small lot fabrication capability after the planned closure of RF. Relocation of some equipment and pertinent records to continue to support the Beryllium Technology mission is required.

FY 1997 funds will be used to complete construction and installation.

SAVANNAH RIVER SITE - PRODUCTS TRANSFERRED FROM MOUND PLANT: TEC - $36,950,000

Subproject 27: Gas Transfer Systems and Reservoir Surveillance Operations: TEC - $36,950,000

TEC	Previous	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
$ 36,950	$ 7,955	$ 7,305	$ 13,300	$ 6,390	$ 2,000	1st Qtr. FY 1995 - 3rd Qtr. FY 1998

TEC decreased from $42,905,000 (cumulative) to $36,950,000. TEC decrease due to DOE Independent Cost Review; realignment of costs to conform with AL project WBS elements; better utilization of existing facilities; reduction in number of Bell Jars; deletion of mezzanine and mods to HVAC and other support systems in RIF; developmental Tritium loading to be accomplished by modifying existing loading line rather than upgrading Loading Line 6; and deletion of the Component Development Lab (735-11A).

At the Savannah River Site, this project provides funds for the location of new operations in an expansion area of Building 233-H and renovated areas of Building 232-H, Building 735-11A. A Reservoir Surveillance Operations (RSO) facility, to be located in 233-H, provides equipment to subject stockpile tritium reservoirs to a variety of environmental conditions such as thermal and mechanical shock, vibration, and centrifugal forces, and then function test them to verify adequate performance. This equipment will be located in isolated, sealed rooms tied into tritium stripper systems. A variety of other analytical capabilities are needed to perform gas analyses, calorimetry, leak and flow tests, and destructive examination to support both pre and post function activities. In addition, tritium loading for commercial sales and inertial confinement fusion microspheres will be performed in Building 233-H. New verification and service systems for Buildings 232-H and 233-H will be sized for economical expansion.

Facility space will be provided in vacant factory areas to allow initiation of development work and staging of equipment prior to the preparation of final facility space. This is required to move the technology prior to the cessation of donor site activities and required production schedules.

One area will be renovated to accommodate additional shelf storage and environmental chambers to conduct storage studies needed for support of Acorn Reservoir Programs. A second area in 232-H to be renovated will house equipment for hydrostatic burst testing. Space within an existing building will be used for a helium purification system.

In a third building, 735-11A, one area will be renovated to establish process development capabilities for support of Acorn reservoir prototype fabrication.

FY 1997 funding will be used to conduct design and construction.

1. Title and Location of Project: Nonnuclear Reconfiguration, Complex-21, Various Locations

2a. Project No.: 93-D-123
2b. Construction Funded

9. Details of Cost Estimate by Site
(estimate is based on complete Conceptual Design Reports)

	SNL Four (4) Subprojects	LANL Five (5) Subprojects	KCP Fifteen (15) Subprojects	SR Two (2) Subprojects	LLNL One (1) Subproject
a. Engineering, design, and inspection and their percentage of construction costs, item b	$ 2,796 (9%)	$ 3,575 (15%)	$ 1,637 (5%)	$ 5,841 (29%)	$ 10 (8%)
b. Construction costs (incl. spec. eqmt., e.g., glovebokes)	29,627	23,725	32,279	20,483	120
c. Standard equipment	5,650	0	0	0	0
d. Other (incl. Prog & Const Mgmt)	4,798	1,230	1,721	4,129	10
Subtotal	$ 42,871	$ 28,530	$ 35,637	$ 30,453	$ 140
e. Contingency @ % of [a+b+c+d] cost	11,248 (25%)	3,059 (11%)	5,415 (15%)	6,497 (21%)	10 (7%)
Total estimated construction cost (TEC)	$ 54,119	$ 31,589	$ 41,052	$ 36,950	$ 150

9a. Details of Cost Estimate

Actual and planned allocation by location for fiscal year funds:

	Previous Years	FY 1995	FY 1996	FY 1997	Cumulative All FYs	Cumulative to Complete
Lawrence Livermore National Laboratory	$ 100	$ 50	$ 0	$ 0	$ 150	$ 0
Sandia National Laboratory, Albuquerque	8,140	31,954	14,025	0	54,119	0
Los Alamos National Laboratory	6,373	9,601	7,518	8,097	31,589	0
Kansas City Plant	28,432	9,090	3,530	0	41,052	0
Savannah River Site	7,955	7,305	13,300	6,390	34,950	2,000
Total Allocation by fiscal year	$ 51,000	$ 58,000	38,373	$ 14,487	$ 161,860	$ 2,000

10. Method of Performance

Design and inspection will be performed under negotiated architect-engineer contracts or by operational contractor. Construction will be by fixed price contracts awarded after competitive proposals and administered by the DOE and Contractor staff. However, operating contractor personnel may perform design and construction roles for activities determined to be cost effective. Procurement of standard equipment will be administered by the DOE and Contractor staff on the basis of competitive proposals.

1. Title and Location of Project: Nonnuclear Reconfiguration, Complex-21, Various Locations

2a. Project No.: 93-D-123
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	Total
a. Total Project Costs						
1. Total Facility Costs						
(a) Line Item	$ 12,480	39,599	$ 61,154	$ 48,627	$ 2,000	$ 163,860
(b) Plant Engineering & Design	0	0	0	0	0	0
(c) Operating Expenses Funded Equipment	0	0	0	0	0	
(d) Inventories	0	0	0	0	0	
Total Facility Cost	$ 12,480	$ 39,599	$ 61,154	$ 48,627	$ 2,000	$ 163,860
(Federal and Non-Federal)	$ 0	0	$ 0	$ 0	$ 0	$ 0
2. Other Project Costs						
(a) R&D Necessary to Complete Project	0	0	0	0	0	0
(b) Conceptual Design Costs	2,800	0	0	0	0	2,800
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA Documentation Costs	0	0	0	0	0	0
(e) Other Project-Related Costs	12,474	7,810	6,904	3,404	811	31,403
Total Other Project Costs	$ 15,274	7,810	$ 6,904	$ 3,404	$ 811	$ 34,203
Total Project Costs	$ 27,754	47,409	$ 68,058	$ 52,031	$ 2,811	$ 198,063
(f) LESS: Non-Federal Contribution	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Net Federal Total Project Costs (TPC)	$ 27,754	$ 47,409	$ 68,058	$ 52,031	$ 2,811	$ 198,063

b. Related Annual Costs (estimated life of the project--30 years)

1. Facility Operating Costs (Note 1)	
2. Facility Maintenance and Repair Costs (Note 1)	
3. Programmatic Operating Expenses Directly Related to the Facility (Note 1)	
4. Capital Equipment not Related to Construction but Related to the Programmatic Efforts in the Facility	$ 0
5. GPP or Other Construction Related to Programmatic Effort in the Facility	$ 0
6. Utility Costs	$ 0
7. Other Costs	$ 0
Total Related Annual Funding	$ 0

Note 1: Activities will reside within the footprint of existing facilities; co-location with ongoing activities is a principal cost reduction objective of this program; the modernization study and other congressional studies document the expected facility operation and maintenance costs - post NNR.

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1. Title and Location of Project: Nonnuclear Reconfiguration, Complex-21, Various Locations	2a. Project No.: 93-D-123 2b. Construction Funded

12. Narrative Explanation of Total Subproject 93-1 Funding and Related Funding Requirements

a. Total Project Funding
   1. Total Facility Costs
      (a) Line Item - Narrative not required
      (b) PE&D - None
      (c) Operating Expense Funded Equipment - None
      (d) Inventories - None

   2. Total Other Project Costs
      (a) Research and Development Necessary to Complete Project - None.
      (b) Conceptual Design Costs - Estimated to be $2,800,000 (Refined Estimate).
      (c) Decontamination and Decommissioning (D&D) - None
      (d) NEPA Documentation - Costs were not borne by this project.
      (e) Other Project Related Costs - include Pre-Title I Activities; facilities operations and maintenance; equipment related training for personnel transferred from the donor sites, hired from the outside, or currently at the receiver site; and purchased support-services including subproject validation, contract administration, design reviews and security escorts.
      (f) Non-Federal Contribution - None

b. Related Annual Costs
   1. Facility operating costs - See Note 1
   2. Facility maintenance and repair costs - See Note 1
   3. Programmatic operating expenses directly related to the facility - See Note 1.
   4. Capital equipment not related to construction but related to the programmatic effort in the facility - None.
   5. Utility costs - Negligible; co-resident operations.
   6. Other costs - None

FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT

TRITIUM SOURCE
$ in Thousands

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Operating Expense	$ 0	$ 75,000	$ 100,000	$ 25,000	33%
Capital Equipment	0	0	0	0	0%
General Plant Projects	0	0	0	0	0%
Total Operations & Maintenance	$ 0	$ 75,000	$ 100,000	$ 25,000	33%
Construction	0	0	0	0	0%
Total, Tritium Source	$ 0	$ 75,000	$ 100,000	$ 25,000	33%

Weapons Stockpile Management
Tritium Source

The Tritium Source Program will assure the availability of adequate supplies of tritium to meet the requirements of the enduring stockpile. In keeping with the Secretarial Record of Decision announced in December 1995, over the next three years, the Department will pursue a dual-track strategy for a new, assured source of tritium. One track will explore the purchase of an operating or partially complete commercial light-water reactor or the purchase of irradiation services from such a reactor. The second track will be to design, build, and test critical components of an accelerator system for production of tritium and prepare a design for the actual facility. The Department will select one of the alternatives at a later date to serve as the primary source of tritium for the nuclear weapons stockpile. The other alternative would be developed as a back-up source.

The Department's Savannah River Site has been selected as the location for an accelerator, should one be built. The tritium recycling facilities at the Site will be upgraded and consolidated to support either of the dual-track options. A tritium extraction facility will also be constructed at the Site.

PROGRAM GOALS:
- Acquire an assured source of tritium
- Implement Record of Decision for dual-track until 1998
- Support project office activities to manage implementation of the Secretarial Record of Decision

CHANGE FROM FY 1996:
FY 1997 program for Tritium Source is increased over FY 1996 due to increased activities in support of project initiation.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Published a draft Programmatic Environmental Impact Statement for Tritium Supply and Recycling for public review and comment - Conducted pre-conceptual design activities - These activities were funded under the Reconfiguration Program	- Secretarial Record of Decision announced in December 1995 - Establish a Project Office to manage implementation of the Secretarial Record of Decision APT Project ($62 million) - Initiate accelerator production of tritium demonstration - Initiate conceptual design - Initiate site-specific NEPA & Environmental Assessment activities - Procure services of prime engineering contractor CLWR Project ($13 million) - Initiate commercial light water reactor project including CLWR target development, extraction capability, and reactor acquisition/initial tritium operation activities	- Support Project Office activities to manage implementation of the Secretarial Record of Decision APT Project ($85 million) - Continue accelerator production of tritium demonstration CLWR Project ($15 million) - Continue commercial light water reactor project including: CLWR target development, extraction capability, and reactor acquisition/initial tritium operation activities. - Make conditional selection of reactor(s) for purchase and/or providing irradiation services

FUNDING LEVELS:

$0	$75,000	$100,000

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FY 1997 CONGRESSIONAL BUDGET REQUEST
WEAPONS STOCKPILE MANAGEMENT

MATERIALS SURVEILLANCE
$ in Thousands

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Operating Expense	$ 99,126	$ 108,811	$ 110,395	$ 1,584	1%
Capital Equipment	1,000	1,000	0	(1,000)	0%
General Plant Projects	0	0	1,725	1,725	100%
Total Operations & Maintenance	$ 100,126	$ 109,811	$ 112,120	$ 2,309	2%
Construction	340	0	0	0	0%
Total, Materials Surveillance	$ 100,466	$ 109,811	$ 112,120	$ 2,309	2%

Weapons Stockpile Management
Materials Surveillance

The Materials Surveillance Program (formerly the Materials Surveillance and Technical Support Program) funds the storage, handling, shipping, safeguarding, control and accountability, and disposition for Defense Programs (DP) nuclear materials located at facilities and former DP facilities that have been transferred to Environmental Management at the Rocky Flats, Fernald, Hanford, Idaho, and Savannah River sites. This program also supports programmatic activities that include: the operation of Bldg 9206 at Y-12 Plant until phaseout and transfer to Bldg 9212; decontaminate and refine surplus precious metals; operation of U-233 Storage and Distribution Center; coordination with U.S. Enrichment Corporation for sale of excess low enriched uranium; safeguards and security protection for, and disposition of DP-owned special nuclear materials (SNM) at Rocky Flats, Fernald, Idaho, Hanford, and Savannah River.

PROGRAM GOALS:

- Provide for safeguards and surveillance of DP plutonium; monitoring & storage of depleted, normal, low and highly enriched uranium; plan for disposition (transfer, sale, discard) of depleted, normal & low enriched uranium.
- Oversight/Operation of Central Scrap Management Office for uranium scrap consolidation & closure of Building 9206 at Y-12 Plant.
- Consolidation of surplus precious metals into DOE precious metals pool.
- Continued safe operation of the U-233 Storage and Distribution Center in Building 3019 at the Oak Ridge National Laboratory.
- Manage processing of irradiated Mark 42 targets for weapons R&D and manage sale & loan program for Californium-252.
- Oversee LANL program to receive and process excess plutonium-beryllium sources from universities, etc.
- Continue implementation of lithium sales at the OR K-25 Plant and the Portsmouth Gaseous Diffusion Plant.

CHANGE FROM FY 1996:

FY 1997 program for Materials Surveillance is essentially level with FY 1996.

MEASURABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Consolidation of surplus precious metals into DOE precious metals pool - Began planning to ship 64 metric tons of Hanford uranium (MTU) and 212 MTU of Fernald uranium to Allied Signal Inc., and 706 MTU of Hanford uranium to United Kingdom - Continued shipment of 200 MTU of Fernald uranium to Manufacturing Sciences Corp	- Began shipment of 706 MTU of excess uranium billets to the United Kingdom - Begin to relocate/consolidate remaining excess uranium out of surplus facilities to a centralized storage location - Complete shipment of 200 MTU of Fernald uranium to Manufacturing Sciences Corp - Began transfer of 212 MTU of Fernald normal uranium to Allied Signal - Began shipment of surplus lithium hydroxide to buyers	- Complete shipment of 706 MTU of excess uranium billets to the United Kingdom - Continue to relocate/consolidate any remaining excess uranium out of surplus facilities to a centralized storage location - Complete shipment of 212 MTU of Fernald normal uranium to Allied Signal - Continue shipment of surplus lithium hydroxide to buyers

FUNDING LEVELS:

$99,126	$108,811	$110,395

Stockpile Management-Direct Mission-**Materials Surveillance**

CAPITAL EQUIPMENT is required to maintain the capabilities and infrastructure at the Oak Ridge National Laboratory and Y-12 Plant.

CHANGE FROM FY 1996:
There is no new funding requirement for FY 1997. It is planned prior year balances will cover FY 1997 requirements.

FUNDING LEVELS:

FY 1995	*FY 1996*	*FY 1997*
$1,000	$1,000	$0

GENERAL PLANT PROJECTS provide funding for low cost construction projects (less than $2 million) required to maintain the infrastructure and ongoing activities of Materials Surveillance at the Oak Ridge National Laboratory and the Y-12 Plant.

CHANGE FROM FY 1996:
No new requirements for FY 1997.

FUNDING LEVELS:

FY 1995	*FY 1996*	*FY 1997*
$0	$0	$1,725

CONSTRUCTION LINE ITEMS:.

CHANGE FROM FY 1996:
There is no new funding requirement for FY 1997.

FUNDING LEVELS:

FY 1995	*FY 1996*	*FY 1997*
$340	$0	$0

PROGRAM DIRECTION

PROGRAM MISSION

[NOTE: Detailed site funding by object class for FY 1995, FY 1996, and FY 1997 is provided in Defense Programs Executive Budget Summary.]

Program Direction provides funds for all personnel-related expenses, capital equipment, and contractual services for Defense Programs offices at the Department of Energy Headquarters and the Albuquerque, Nevada, Oak Ridge, Oakland, and Savannah River Operations Offices. The departmental Working Capital Fund, established to fund business-type activities traditionally financed in the Departmental Administration account, is funded from this decision unit. The statutory Community Assistance Program at Los Alamos, New Mexico, is also funded from Program Direction.

The *GOAL* of Program Direction is to provide oversight of Defense Programs changing mission which has shifted from weapons and materials design, testing, and production to stockpile stewardship, maintenance, weapons dismantlement and the transition of unneeded facilities. These ongoing responsibilities will be accomplished by streamlining and strengthening the management, organization, performance, and oversight of the Defense Programs national security activities by providing competent and sufficient staff and support services to carry out successfully assigned activities.

The *OBJECTIVES* related to this goal are:

- Provide management and oversight of the $1.6 billion Stockpile Stewardship program and $1.8 billion Stockpile Management program.

- Provide Federal couriers and personnel-related costs for the Transportation Safeguards Program at Albuquerque.

- Assure that business services, including phones and automated office support systems, copiers and office supplies, are available to Defense Programs staff.

- Provide for statutory requirements, including the Los Alamos Community Assistance Program.

PROGRAM DIRECTION - PROGRAM MISSION (Continued)

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS

- Since FY 1992, streamlined Defense Programs by reducing the FY 1992 full-time equivalents (FTEs) level of 495 at Headquarters to 366 through FY 1995, redeploying staff to meet evolving needs.

- Since FY 1993, Defense Programs has reduced organizational elements at Headquarters from 71 to 24, a reduction of 47 components, about 66 percent, and eliminated all Division (third-tier) components, resulting in a reduction of managers/supervisors from 89 to 28. The current ratio of supervisors to employees is 1:12.

- Quality training for all Defense Programs employees completed, as well as numerous other technical and professional courses attended by Defense Programs employees.

- Achieved Defense Programs Strategic Alignment Initiative reduction in support services contracting and travel at Headquarters and field locations.

- Safeguards and Security investigations at the Oakland Operations Office were reduced to adhere to new guidance, thereby realizing a reduction in the amount of clearances required and the associated cost.

- Established the National Ignition Facility Project Office at the Oakland Operations Office/Lawrence Livermore National Laboratory by redeploying existing staff and funding resources.

- Eliminated internal and external appraisals of the Lawrence Livermore National Laboratory where the University of California/Lawrence Livermore National Laboratory self-assessments are validated as accurate by Oakland.

- At Albuquerque, Information Management Strategic Alignment Initiative realized approximately $2 million savings in the following areas: applications development, fewer repair calls, and reduced training courses.

- The IBM mainframe equipment maintenance contracts at Albuquerque were combined into one, resulting in a savings of approximately $100,000 per year.

- Continued implementation of the Chief Financial Officers Act of 1990 and the Federal Managers' Financial Integrity Act process to promote improved financial and business practices at the Department of Energy contractor facilities.

BUDGET STRUCTURE CHANGES

In accordance with guidance contained in H.R. 104-293, FY 1996 Energy and Water Development Appropriations Conference Report, Defense Programs Federal staff and supporting contractual services funding has been transferred from the Stockpile Stewardship and Stockpile Management decision units to the Program Direction decision unit. The Department's Working Capital Fund, established to fund business-type activities, is transferred from the Departmental Administration account. These transfers to the Program Direction decision unit are reflected in Table 1-A and Table 1-B.

The **Defense Nuclear Facilities Safety Board** is funded in the Other Defense Activities Appropriation in FY 1997.

WEAPONS PROGRAM DIRECTION
BUDGET STRUCTURE CHANGES
($ in Thousands)

	FY 1995					
	OLD STRUCTURE		CHANGES		NEW STRUCTURE	
	ADJUSTED APPROPRIATION				COMPARABILITY	
	$	FTES	$	FTES	$	FTES
PROGRAM DIRECTION						
Headquarters	42,477 a/	217	64,576	149	107,053	366
Field	99,044 b/	758	159,145	1,053	258,189	1,811
Subtotal	141,521	975	223,721	1,202	365,242	2,177
Adjustments	(15,299)				(15,299)	
Total	126,222	975	223,721	1,202	349,943	2,177
STOCKPILE STEWARDSHIP						
Headquarters	2,600	0	(2,600)	0	0	0
Field	46,773	231	(46,773)	(231)	0	0
Total	49,373	231	(49,373)	(231)	0	0
STOCKPILE MANAGEMENT						
Headquarters	55,450	149	(55,450)	(149)	0	0
Field	112,372	822	(112,372)	(822)	0	0
Total	167,822	971	(167,822)	(971)	0	0
DEPARTMENTAL ADMINISTRATION						
Headquarters						
Working Capital Fund	6,526	0	(6,526)	0	0	0

a/ Reflects comparability adjustments as follows: Transfer of $17,336,000 to the Office of Emergency Management and transfer of $551,000 to the Office of Environment, Health and Safety for the Defense Nuclear Facilities Safety Board, within the Other Defense Activities Appropriation.

b/ Includes $18,000,000 for the Capital Asset Management Process/Condition Assessment Surveys (CAMP/CAS) Program and $10,990,000 for the Los Alamos Community Assistance Program.

TABLE 1-A

WEAPONS PROGRAM DIRECTION
BUDGET STRUCTURE CHANGES
($ in Thousands)

	FY 1996					
	OLD STRUCTURE		CHANGES		NEW STRUCTURE	
	APPROPRIATION				COMPARABILITY	
	$	FTES	$	FTES	$	FTES
PROGRAM DIRECTION						
Headquarters	34,235 a/	225	58,873	127	93,108	352
Field	79,765 b/	702	154,060	1,072	233,825	1,774
Subtotal	114,000	927	212,933	1,199	326,933	2,126
Adjustments	(13,400)				(13,400)	
Total	100,600	927	212,933	1,199	313,533	2,126
STOCKPILE STEWARDSHIP						
Headquarters	1,306	0	(1,306)	0	0	0
Field	45,800	233	(45,800)	(233)	0	0
Total	47,106	233	(47,106)	(233)	0	0
STOCKPILE MANAGEMENT						
Headquarters	50,955	127	(50,955)	(127)	0	0
Field	108,260	839	(108,260)	(839)	0	0
Total	159,215	966	(159,215)	(966)	0	0
DEPARTMENTAL ADMINISTRATION						
Headquarters						
Working Capital Fund	6,612	0	(6,612)	0	0	0

a/ Reflects comparability adjustment of $1,000,000 transferred to the Office of Environment, Health, and Safety for the Defense Nuclear Facilities Safety Board, within the Other Defense Activities Appropriation.

b/ Includes $11,290,000 for the Los Alamos Community Assistance Program.

TABLE I-B

BUDGET STRUCTURE

FEDERAL AND CONTRACTUAL SUPPORT provides funds for general management, executive direction, and general supervision of program operations, negotiations and administration of contracts, and other administrative activities in support of Defense Programs mission at Headquarters and the Albuquerque, Nevada, Oak Ridge, Oakland, and Savannah River Operations Offices. Supports Defense Programs requirements for Automated Office Support Systems, Local Area Network (LAN), communication and video equipment, and other miscellaneous contractual support activities to support Defense Programs operations.

TRANSPORTATION SAFEGUARDS PROGRAM provides funding for Federal FTEs and related contractual support to assure the safe, secure movement of nuclear weapons, strategic quantities of Special Nuclear Material, nuclear test devices, selected nonnuclear weapon components, and limited-life components to and from military locations and between nuclear complex facilities within the continental United States. Operational vehicles and the communications maintenance program is funded in the Stockpile Management Decision Unit.

WORKING CAPITAL FUND provides for activities such as automated office support, telephone services, postage, printing and graphics, supplies, copiers, building occupancy, contract closeouts, contract audits and Senior Executive Service awards and workman's compensation for Defense Programs employees, historically funded in the Departmental Administration account. Responsibility for funding of these activities has been transferred to the Department's program offices; however, management of thse activities still remains with Departmental Administration.

LOS ALAMOS COMMUNITY ASSISTANCE PROGRAM is administered by the Department under Section 91 of Public Law 94-187, the Atomic Energy Community Act of 1955, as amended, to provide assistance to specified units of local government in the Los Alamos community associated with the Los Alamos National Laboratory.

WEAPONS PROGRAM DIRECTION
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Subprogram	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
PROGRAM DIRECTION					
Operations & Maintenance	$ 365,242	$ 115,000	$ 211,933	$ 326,933	$ 334,404
Adjustments a/	(15,299)	(13,400)	0	(13,400)	0
TOTAL NEW OBLIGATIONAL AUTHORITY	$ 349,943 b/	$ 101,600	$ 211,933	$ 313,533 c/	$ 334,404
SUMMARY					
Federal & Contractual Support	$ 319,896	$ 103,710	$ 176,626	$ 280,336	$ 286,343
Transportation Safeguards Program	27,830	0	28,695	28,695	29,731
Working Capital Fund	6,526	0	6,612	6,612	7,040
Los Alamos Community Assistance Program	10,990	11,290	0	11,290	11,290
Adjustments	(15,299)	(13,400)		(13,400)	
Total, New Obligational Authority	$ 349,943	$ 101,600	$ 211,933	$ 313,533	$ 334,404
Staffing (FTE's)					
HQ FTE's	366	225	127	352	311
Field FTE's	1,811	702	1,072	1,774	1,686
Total FTE's	2,177	927	1,199	2,126	1,997

FOOTNOTES:

a/ Use of prior-year balances.

b/ FY 1995 Appropriation: $159,852,000. Adjustments as follows: Travel rescission -$444,000; transfer of $17,336,000 from Weapons Program Direction to the Office of Emergency Management and transfer of $551,000 to the Office of the Assistant Secretary for Environment, Safety, and Health for the Defense Nuclear Facilities Safety Board within the Other Defense Activities Appropriation; transfers to Weapons Program Direction for Federal and Contractual Support as directed in Conference Report 104-293 accompanying the FY 1996 Energy and Water Development Appropriations Bill dated October 26, 1995, as follows: $49,373,000 from Stockpile Stewardship and $167,822,000 from Stockpile Management; and $6,526,000 from Departmental Administration for the Working Capital Fund. New Obligational Authority reduced by $15,299,000 to be applied against use of prior-year balances. Comparable Appropriation $349,943,000.

c/ FY 1996 Appropriation: $115,000,000. Adjustments as follows: Transfer to Weapons Program Direction for Federal and Contractual Support as directed in Conference Report 104-293 accompanying the FY 1996 Energy and Water Development Appropriations Bill dated October 26, 1995, as follows: $47,106,000 from Stockpile Stewardship and $159,215,000 from Stockpile Management. Reflects transfer of $6,612,000 from Departmental Administration for the Working Capital Fund. Reflects transfer of $1,000,000 to the Office of the Assistant Secretary for Environment, Safety and Health for the Defense Nuclear Facilities Safety Board within the Other Defense Activities Appropriation. New obligational authority reduced by $13,400,000 to be applied against use of prior-year balances. Comparable Appropriation: $313,533,000.

FEDERAL AND CONTRACTUAL SUPPORT provides funds for Federal salaries, personal services, personnel benefits, travel, training, supplies, and support services necessary to conduct Defense Programs activities at Headquarters and the Albuquerque, Nevada, Oak Ridge, Oakland, and Savannah River Operations Offices. Activities include general management, executive direction, general supervision of program operations, negotiation and administration of operating contractors and other procurements, weapons complex resource management and planning, technical oversight and review, and the conduct of special programs and activities.

Funding is also provided to cover the anticipated costs related to the Department's Voluntary Separation Incentive Pay Program as follows: lump-sum incentive payment of up to $25,000, a 9 percent surcharge on the final salary of each full-time equivalent departure, and lump-sum payment of accrued annual leave. The Department recently instituted a mechanism by which program offices were delegated authority through the use of credit cards to purchase office products and services in as fast, efficient, and paperless manner as possible due to downsizing of the Headquarters Office of Procurement Operations. To carry out effectively the Defense Programs mission, transfer of this authority to program managers is requested to procure items such as office supplies, rent or purchase of copiers or copier supplies, printing services, messenger services, package delivery services, building alterations, office moves, carpet installation or repairs, and books and publications purchased by the Library within available funds through the credit card process.

PROGRAM GOALS/ONGOING RESPONSIBILITIES:

Headquarters:

- Overall management direction and administration in support of Defense Programs' mission to insure that operations are conducted in the most efficient manner consistent with national security policies and objectives.
- Crosscut planning, budget, and logistical support to all Defense Programs Headquarters program activities.
- Management of Defense Programs training and staff development programs including outreach initiatives.
- Support Defense Programs requirements for Automated Office Support Systems and other communications equipment.

Field Offices:

- Albuquerque Operations Office - Provides for Federal programmatic oversight of the Stockpile Management program and oversight of the weapons plants through area offices. Provides for Federal oversight of the Los Alamos National Laboratory through the Los Alamos Area Office and of Sandia National Laboratories through the Kirtland Area Office.
- Nevada Operations Office - Oversight and administration of the Stockpile Stewardship Program at the Nevada Test Site.
- Oak Ridge Operations Office - Federal oversight of the Y-12 Plant.
- Oakland Operations Office - Federal oversight of the Lawrence Livermore National Laboratory.
- Savannah River Operations Office - Federal oversight of tritium operations at the Savannah River Site.

CHANGE FROM FY 1996:

Increased FY 1997 funding will provide for anticipated costs related to the Department's Voluntary Separation Incentive Pay Program and other Strategic Alignment Initiative activities, and costs associated with the expected transfer of 25 FTEs (15 Headquarters, 10 field) from other department elements in support of Defense Programs mission.

The funding requested to cover the projected cost of the Voluntary Separation Incentive Pay Program for FY 1997 is estimated based on the cost of the program since its inception in FY 1994. Through FY 1996, for Headquarters, 31 Defense Programs staff will have taken advantage of the program at an estimated cost of approximately $1.6 million, an average of $51,600 per buyout. In FY 1997, about 50 applicants at Headquarters are conditionally approved for the Voluntary Separation Incentive Pay Program, 60 percent of which are Grades GS-14, GS-15, and Senior Executive Service positions. In one year, Defense Programs will have exceeded the number of buyouts for the preceeding three years and, with the higher grades, it is possible that the average cost per buyout at Headquarters will be higher. Thus, coupled with our estimate of a similar number of buyouts needed to meet field office SAI targets, supports our estimate of about $5 million for buyouts and related SAI implementation costs.

Other costs related to SAI include the cost of major organizational changes. For example, Defense Programs has established a Core Technical Group, based at Headquarters, to respond to technical problems throughout the Weapons Complex (for I;S&T1 and safeguards and security reviews and/or assessments). The consolidation of these activities will result in reduced Federal employees performing these activities and be more cost-effective with overall department guidance from one location. However, there are upfront investment costs to realize savings and efficiencies in the future.

No change reflected in the Advisory and Assistance Services costs from FY 1996 to FY 1997. Control of support service costs is a key part of the Strategic Alignment Initiative. Support services are grouped into two categories: technical support services and management support services. Based on a preliminary analysis, 95 percent of advisory and assistance contracts are technical and 5 percent are administrative/management support. An implementation group was created to address the department's goals for reducing and controlling these costs. The overall Department's reduction in support services contracts exceeded the goal of a 15 percent reduction in FY 1995. The group established the Department's FY 1996 ceilings and directed the ceilings for FY 1997 be held at the same level. Defense Programs advisory and assistance services from FY 1995 to FY 1996 were reduced 29 percent at Headquarters and approximately 15 percent at the field offices.

EXPLANATION OF AVERAGE FTE COSTS:

Tables 2A through 2G outline average FTE costs, both by total costs and the basic personnel costs, for each Defense Programs site. General reasons for variances in each category are:

AVERAGE PERSONNEL COST PER FTE:

- Locality pay: In FY 1991, the Oakland Operations Office received a 12 percent locality pay increase in addition to the Federal cost-of-living increase. The Department of Energy Headquarters' staff also received a locality pay increase of 4.23 percent in FY 1994. This action increased the base pay per FTE for these two locations which increases the average cost per FTE per year.

- Grade structure: Based on the number of administrative/clerical support positions at grades lower than GS-9 compared to the number of higher grades for programmatic, technical, and managerial positions.

AVERAGE TOTAL COST PER FTE:

- Landlord costs such as rent and utilities, operation and maintenance of facilities, and miscellaneous costs: Defense Programs is landlord for Albuquerque and Nevada, whereas landlord costs are incurred by other programs at Oak Ridge, Oakland, and Savannah River.

- Working Capital Fund: This transfer from Departmental Administration, applicable only at Headquarters, is about $7 million annually and is applied to the following categories by object class: 11.5 Other Personnel Compensation; 12.1 Civilian Personnel Benefits; 23.3 Rent, Communications, Utilities, and Miscellaneous Charges; 24.0 Printing and Reproduction; 25.2 Other Services; 25.4 Operation and Maintenance of Facilities; and 26.0 Supplies and Services.

- Transportation Safeguards Program reflects personnel costs and minimal costs for other services. Program costs such as contractual support are included in the Stockpile Management decision unit since the transportation safeguards activity is direct program, not program support/oversight.

It should be noted that the full-time equivalent allocations upon which the average costs are derived may be changed based on future decisions by the Strategic Alignment Initiative staffing team.

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MEASUREABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
- Provided salaries, benefits, travel, and contractual services and supplies for Defense Programs Headquarters and field Federal employees necessary to meet program requirements. - Continued Defense Programs training program. - Continued financial improvements and operations consistent with the Chief Financial Officers Act and the Federal Managers' Financial Integrity Act. - Provided oversight of site/plant missions from a legal, environmental, safety, and health (ES&H), programmatic and financial standpoint. - Final year of funding the Capital Assessment Management Process/Condition Assessment Surveys (CAMP/CAS) program from the Program Direction account. - Negotiated a new support service agreement at Albuquerque with the Air Force for electricity, gas, water, sewage, and refuse. - Implemented a Self-Assessment Program at Nevada to include independent assessments in all areas of ES&H, safeguards and security, and program management. - Provided oversight for technology partnerships program reviews at all Oakland M&O contractors with technology transfer authority.	- Provide salaries, benefits, travel, and contractual services and supplies for Defense Programs Headquarters and field Federal employees necessary to meet program requirements. - Continue Defense Programs training program. - Continue financial improvements and operations consistent with the Chief Financial Officers Act and the Federal Managers' Financial Integrity Act. - Provide oversight of site/plant missions from a legal, ES&H, programmatic and financial standpoint. - Institute travel ceilings in accordance with Secretarial initiative to accomplish a reduction in travel costs. - Meet departmental mandate to reduce significantly support service contract expenditures by approximately 20 percent. - Review new initiatives -- Dual-Axis Radiographic Hydrotest Facility (DARHT), National Ignition Facility (NIF), and Accelerated Strategic Computing Initiative (ASCI) -- to assure appropriate safeguards and security is considered in design and implementation. - Support safeguards and security assessments for Defense Programs sites and Defense Programs material inventories subject to International Atomic Energy Agency (IAEA) and other treaty initiatives. - Assure adequate safeguards and security of tritium supply for Defense Programs. - Provide oversight for technology partnerships program reviews at all Oakland M&O contractors with technology transfer authority.	- Provide salaries, benefits, travel, and contractual services and supplies for Defense Programs Headquarters and field Federal employees necessary to meet program requirements. - Continue Defense Programs training program. - Continue financial improvements and operations consistent with the Chief Financial Officers Act and the Federal Managers' Financial Integrity Act. - Provide oversight of site/plant missions from a legal, ES&H, programmatic, and financial standpoint. - Continue to downsize Defense Programs Federal staff and contractual support consistent with long-term mission responsibilities as outlined in the Strategic Alignment Initiatives. - Continue to review new initiatives in DARHT, NIF, and ASCI. - Continue safeguards and security support of assessments for Defense Programs sites and Defense Programs material inventories subject to IAEA and other treaty initiatives. - Assure adequate safeguards and security of tritium supply for Defense Programs. - Provide oversight for technology partnerships at program reviews at all Oakland M&O contractors with technology transfer authority.

FUNDING LEVELS:

$319,896	$280,336	$286,343

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
($ in Thousands)

HEADQUARTERS

		FY 1995	FY 1996	FY 1997
Personnel Compensation:				
11.1	Full-Time Permanent	$ 27,625	$ 27,605	$ 27,405
11.5	Other Personnel Compensation	1,595 a/	1,588 a/	1,587 a/
11.9	Total Personnel Compensation	$ 29,220	$ 29,193	$ 28,992
12.1	Civilian Personnel Benefits	7,390 b/	7,438 b/	10,461 b/ d/
	SUBTOTAL PERSONNEL COSTS	$ 36,610	$ 36,631	$ 39,453
21.0	Travel and Transportation of Persons	4,181	3,989	3,700
22.0	Transportation of Things	0	0	0
23.3	Rent, Communications, Utilities, & Misc Charges	5,708	4,718	4,764
24.0	Printing and Reproduction	325	330	349
25.1	Advisory and Assistance Services	48,765	34,788	34,788 e/
25.2	Other Services	8,547	9,700	14,330 f/
25.3	Purchases of Goods and Services from Government Accounts	0	0	0
25.4	Operation and Maintenance of Facilities	2,471	2,504	2,666
26.0	Supplies and Materials	196	198	211
31.0	Equipment	250	250	257
	SUBTOTAL	$ 107,053	$ 93,108	$ 100,518
	CAMP/CAS Program	18,000 c/	0	0
	Total Weapons Program Direction	$ 125,053	$ 93,108	$ 100,518
	FTE's	366	352	311 g/
	AVERAGE PERSONNEL COST PER FTE (whole $)	$ 96,822	$ 100,690	$ 104,723 h/
	AVERAGE TOTAL COST PER FTE (whole $)	$ 292,495	$ 264,511	$ 299,161 h/

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a/ Includes funding for SES bonuses from Working Capital Fund, not included in Average Personnel Cost Per FTE, as follows:
FY 1995 $134,000; FY 1996 $135,000; and FY 1997 $145,000.
b/ Includes funding for Workman's Compensation from Working Capital Fund, not included in Average Personnel Cost Per FTE, as follows:
FY 1995 $1,039,000; FY 1996 $1,053,000; and FY 1997 $1,121,000.
c/ Average Total Cost Per FTE excludes $18 million for CAMP/CAS Program.
d/ Includes $3 million for the Voluntary Separation Incentive Pay Program and other costs associated with implementation of the Secretary's Strategic Alignment Initiatives, i.e., establishment of the Core Technical Group, not included in the Average Personnel Cost Per FTE computation.
e/ Department has directed that FY 1997 ceilings for Advisory and Assistance Services, including support services contracts, be held at the FY 1996 level.
f/ Provides funding for implementation of departmental Strategic Alignment Initiative recommendations for Central Accounting, Central Technical Office, and implementation of the SAI Staffing Team FTE allocation recommendations. Funding will be distributed to appropriate personnel cost object class.
g/ Excludes 25 FTE's expected to be transferred from other Department elements in support of Defense Programs mission.
h/ Includes $2.6 million and 25 FTE's expected to be transferred from other departmental organizations based on pending SAI actions.

TABLE 2-A

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
($ in Thousands)

ALBUQUERQUE OPERATIONS OFFICE

		FY 1995	FY 1996	FY 1997
Personnel Compensation:				
11.1	Full-Time Permanent	$ 48,763	$ 49,334	$ 48,494
11.5	Other Personnel Compensation	2,566	2,596	2,551
11.9	Total Personnel Compensation	$ 51,329	$ 51,930	$ 51,045
12.1	Civilian Personnel Benefits	10,266	10,386	11,709 b/
	SUBTOTAL PERSONNEL COSTS	$ 61,595	$ 62,316	$ 62,754
21.0	Travel and Transportation of Persons	7,061	7,248	6,007
22.0	Transportation of Things	280	285	295
23.3	Rent, Communications, Utilities, & Misc Charges	3,565	3,700	3,850
24.0	Printing and Reproduction	149	140	140
25.1	Advisory and Assistance Services	54,285	47,205	47,205 c/
25.2	Other Services	3,087	3,211	1,834
25.3	Purchases of Goods and Services from Government Accounts	100	100	100
25.4	Operation and Maintenance of Facilities	6,115	6,775	6,755
26.0	Supplies and Materials	0	0	0
31.0	Equipment	0	0	0
	SUBTOTAL	$ 136,237	$ 130,980	$ 128,940
	Los Alamos Community Assistance Program	10,990 a/	11,290 a/	11,290 a/
	Total Weapons Program Direction	$ 147,227	$ 142,270	$ 140,230
	FTE's	956	930	879
	AVERAGE PERSONNEL COST PER FTE (whole $)	$ $64,430	$ $67,006	$ $69,686
	AVERAGE TOTAL COST PER FTE (whole $)	$ $142,507	$ $140,839	$ $146,689

a/ Excludes the Los Alamos Community Assistance Program funding from Average Personnel and Average Total Cost Per FTE.

b/ Includes $1,500,000 for the Voluntary Separation Incentive Pay Program, not included in Average Personnel Cost Per FTE computation.

c/ Department has directed the FY 1997 ceilings for Advisory and Assistance Services, including support services contractors, be held at the FY 1996 level.

TABLE 2-B

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
($ in Thousands)

TRANSPORTATION SAFEGUARDS PROGRAM (AL)

		FY 1995	FY 1996	FY 1997
Personnel Compensation:				
11.1	Full-Time Permanent	$ 18,634	$ 19,048	$ 20,657
11.5	Other Personnel Compensation	981	1,002	1,087
11.9	Total Personnel Compensation	$ 19,615	$ 20,050	$ 21,744
12.1	Civilian Personnel Benefits	4,905	5,010	4,292 b/
	SUBTOTAL PERSONNEL COSTS	$ 24,520	$ 25,060	$ 26,036
21.0	Travel and Transportation of Persons	3,100	3,410	3,455
22.0	Transportation of Things	0	0	0
23.3	Rent, Communications, Utilities, & Misc Charges	0	0	0
24.0	Printing and Reproduction	0	0	0
25.1	Advisory and Assistance Services	0	0	0 c/
25.2	Other Services	210	225	240
25.3	Purchases of Goods and Services from Government Accounts	0	0	0
25.4	Operation and Maintenance of Facilities	0	0	0
26.0	Supplies and Materials	0	0	0
31.0	Equipment	0	0	0
	TOTAL WEAPONS PROGRAM DIRECTION	$ 27,830	$ 28,695	$ 29,731
	FTE's	$ 376	$ 361	$ 355
	AVERAGE PERSONNEL COST PER FTE (whole $) a/	$ 65,213	$ 69,418	$ 72,918
	AVERAGE TOTAL COST PER FTE (whole $)	$ 74,016	$ 79,488	$ 83,749

a/ Reflects higher than average personnel costs due to night differential payments and extensive overtime paid to couriers.
b/ Includes $150,000 for the Voluntary Separation Incentive Pay Program, not included in Average Personnel Cost Per FTE computation.
c/ Because Transportation Safeguards provides direct program rather than support, any services would be provided by the directed program office in Stockpile Management.

TABLE 2-C

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
($ in Thousands)

NEVADA OPERATIONS OFFICE

		FY 1995	FY 1996	FY 1997
Personnel Compensation:				
11.1	Full-Time Permanent	$ 15,569	$ 16,297	$ 15,633
11.5	Other Personnel Compensation	819	857	822
11.9	Total Personnel Compensation	$ 16,388	$ 17,154	$ 16,455
12.1	Civilian Personnel Benefits	3,265	3,418	3,878 a/
	SUBTOTAL PERSONNEL COSTS	$ 19,653	$ 20,572	$ 20,333
21.0	Travel and Transportation of Persons	1,041	1,002	1,018
22.0	Transportation of Things	25	26	27
23.3	Rent, Communications, Utilities, & Misc Charges	1,445	2,135	2,199
24.0	Printing and Reproduction	100	187	193
25.1	Advisory and Assistance Services	15,422	13,650	13,650 b/
25.2	Other Services	200	315	300
25.3	Purchases of Goods and Services from Government Accounts	1	1	1
25.4	Operation and Maintenance of Facilities	347	217	124
26.0	Supplies and Materials	331	385	320
31.0	Equipment	0	0	0
	TOTAL WEAPONS PROGRAM DIRECTION	$ 38,565	$ 38,490	$ 38,165
	FTE's	$ 307	$ 309	$ 285
	AVERAGE PERSONNEL COST PER FTE (whole $)	$ 64,016	$ 66,576	$ 69,239
	AVERAGE TOTAL COST PER FTE (whole $)	$ 125,619	$ 124,563	$ 133,912

a/ Includes $600,000 for the Voluntary Separation Incentive Pay Program, not included in Average Personnel Cost Per FTE computation.
b/ Department has directed the FY 1997 ceilings for Advisory and Assistance Services, including support services contracts, be held at the FY 1996 level.

TABLE 2-D

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
($ in Thousands)

OAK RIDGE OPERATIONS OFFICE

		FY 1995	FY 1996	FY 1997	
Personnel Compensation:					
11.1	Full-Time Permanent	$ 3,829	$ 3,724	$ 3,712	
11.5	Other Personnel Compensation	201	195	194	
11.9	Total Personnel Compensation	$ 4,030	$ 3,919	$ 3,906	
12.1	Civilian Personnel Benefits	650	632	630	
	SUBTOTAL PERSONNEL COSTS	$ 4,680	$ 4,551	$ 4,536	
21.0	Travel and Transportation of Persons	600	560	500	
22.0	Transportation of Things	0	0	0	
23.3	Rent, Communications, Utilities, & Misc Charges	0	0	0	
24.0	Printing and Reproduction	0	0	0	
25.1	Advisory and Assistance Services	1,363	1,185	1,185	a/
25.2	Other Services	3,897	2,637	4,209	b/
25.3	Purchases of Goods and Services from Government Accounts	0	0	0	
25.4	Operation and Maintenance of Facilities	0	0	0	
26.0	Supplies and Materials	210	367	270	
31.0	Equipment	0	0	0	
	TOTAL WEAPONS PROGRAM DIRECTION	$ 10,750	$ 9,300	$ 10,700	
	FTE's	$ 77	$ 72	$ 69	
	AVERAGE PERSONNEL COST PER FTE (whole $)	$ 60,779	$ 63,208	$ 65,739	
	AVERAGE TOTAL COST PER FTE (whole $)	$ 139,610	$ 129,167	$ 155,072	

a/ Department has directed the FY 1997 ceilings for Advisory and Assistance Services, including support services contracts, be held at the FY 1996 level.

b/ Increase attributable to upgrades of automation requirements at the Y-12 Site Office, requirements for administrative support of the ES&H FTE's being reassigned to the Y-12 Site Office in order to provide technical advice and support for the development and implementation of safety and health programs, increase in overhead rates charged by the M&O contractor the support provided to the Y-12 Site Office, and increase in training requirements for the Quality Technical Training Program.

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
($ in Thousands)

OAKLAND OPERATIONS OFFICE

		FY 1995	FY 1996	FY 1997	
Personnel Compensation:					
11.1	Full-Time Permanent	$ 5,163	$ 5,184	$ 5,135	
11.5	Other Personnel Compensation	272	274	270	
11.9	Total Personnel Compensation	$ 5,435	$ 5,458	$ 5,405	
12.1	Civilian Personnel Benefits	1,182	1,187	1,275	a/
	SUBTOTAL PERSONNEL COSTS	$ 6,617	$ 6,645	$ 6,680	
21.0	Travel and Transportation of Persons	836	717	749	
22.0	Transportation of Things	14	56	21	
23.3	Rent, Communications, Utilities, & Misc Charges	675	325	336	
24.0	Printing and Reproduction	52	50	52	
25.1	Advisory and Assistance Services	1,035	900	900	b/
25.2	Other Services	3,985	3,875	3,820	
25.3	Purchases of Goods and Services from Government Accounts	0	0	0	
25.4	Operation and Maintenance of Facilities	0	0	0	
26.0	Supplies and Materials	424	300	309	
31.0	Equipment	104	137	138	
	TOTAL WEAPONS PROGRAM DIRECTION	$ 13,742	$ 13,005	$ 13,005	
	FTE's	$ 87	$ 84	$ 80	
	AVERAGE PERSONNEL COST PER FTE (whole $)	$ 76,057	$ 79,107	$ 82,250	c/
	AVERAGE TOTAL COST PER FTE (whole $)	$ 157,954	$ 154,821	$ 162,563	

a/ Includes $100,000 for the Voluntary Separation Incentive Pay Program, not included in Average Personnel Cost per FTE computation.
b/ Department has directed the FY 1997 ceilings for Advisory and Assistance Services, including support services contracts, be held at the FY 1996 level.
c/ Reflects adjustment in FY 1991 to increase base pay by 12 percent for locality pay.

TABLE 2-F

WEAPONS PROGRAM DIRECTION
Federal Personnel Funding by Object Class
($ in Thousands)

SAVANNAH RIVER OPERATIONS OFFICE

		FY 1995	FY 1996	FY 1997	
Personnel Compensation:					
11.1	Full-Time Permanent	$ 494	$ 1,157	$ 1,203	
11.5	Other Personnel Compensation	26	61	63	
11.9	Total Personnel Compensation	$ 520	$ 1,218	$ 1,266	
12.1	Civilian Personnel Benefits	75	173	179	
	SUBTOTAL PERSONNEL COSTS	$ 595	$ 1,391	$ 1,445	
21.0	Travel and Transportation of Persons	50	75	75	
22.0	Transportation of Things	0	0	0	
23.3	Rent, Communications, Utilities, & Misc Charges	0	0	0	
24.0	Printing and Reproduction	0	0	0	
25.1	Advisory and Assistance Services	482	402	402	a/
25.2	Other Services	948	197	133	
25.3	Purchases of Goods and Services from Government Accounts	0	0	0	
25.4	Operation and Maintenance of Facilities	0	0	0	
26.0	Supplies and Materials	0	0	0	
31.0	Equipment	0	0	0	
	TOTAL WEAPONS PROGRAM DIRECTION	$ 2,075	$ 2,065	$ 2,055	
	FTE's	$ 8	$ 18	$ 18	
	AVERAGE PERSONNEL COST PER FTE (whole $)	$ 74,375	$ 77,278	$ 80,278	
	AVERAGE TOTAL COST PER FTE (whole $)	$ 259,375	$ 114,722	$ 114,167	

a/ Department has directed the FY 1997 ceilings for Advisory and Assistance Services, including support services contracts, be held at the FY 1996 level.

TABLE 2-G

TRANSPORTATION SAFEGUARDS PROGRAM at the Albuquerque Operations Office provides for the safe, secure movement of nuclear weapons, strategic quantities of Special Nuclear Material, nuclear test devices, selected nonnuclear weapons components, and limited life components to and from military locations and between nuclear weapons complex facilities within the continental United States.

In compliance with Congressional direction that all Federal staff and supporting contractual services be consolidated into one amount, the full-time equivalents and associated costs for this program have been transferred from the Stockpile Management decision unit. However, to carry out successfully the activities necessary to insure the safe transport of nuclear weapons between military locations, funding for the following activities have remained in Stockpile Management: maintenance and modifications of vehicles and the communication system, production of new Safeguards Transporters, weapons deliveries and stockpile modifications specified in the current Production and Planning Directive, and continued support of weapons movements associated with military base closings. Total funding requested for this activity in FY 1997 is $96.6 million -- $29.7 million in Program Direction; $66.9 million in Stockpile Management.

CHANGE FROM FY 1996:

Increase in personnel expenses is attributable to the increased activity of movement of weapons for dismantlement.

MEASUREABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
Provided for personnel costs and related administrative support activities in connection with the safe handling of nuclear weapons and related activities. Couriers covered approximately 4.4 million miles in support of this activity.	Provide for personnel costs and related administrative support activities in connection with the safe handling of nuclear weapons and related activities. It is estimated that 4.5 million miles will be covered in support of this activity.	Provide for personnel costs and related administrative support activities in connection with the safe handling of nuclear weapons and related activities. It is estimated that 4.6 million miles will be covered in support of this activity.

FUNDING LEVELS:

$27,830	$28,695	$29,731

WORKING CAPITAL FUND is a directive from Departmental Administration which allocates administrative costs to the Headquarters programs or operational functions for which they are incurred. Departmental Administration will continue to manage administrative activities defined in the Working Capital Fund -- automated office support, telephone services, postage, printing and graphics, supplies, copiers, building occupancy (rents), contract closeouts, and contract audits and Senior Executive Service awards and workman's compensation for Defense Programs employees.

PROGRAM GOALS/ONGOING RESPONSIBILITIES as stated by Departmental Administration:

- Increase efficiency of the Departments' operations by having the cost of administrative services reflected in program managers' budgets.

- Improve the management of administrative services through use of flexible and business-like financing methods.

- Provide an accurate full-cost budget for programs and activities, including indirect costs.

CHANGE FROM FY 1996:

Increased funding reflects Departmental Administration's assessment of Defense Programs historical expenditures for categories contained in the Working Capital Fund.

MEASUREABLE PERFORMANCE ACTIVITIES:

FY 1995:	FY 1996:	FY 1997:
Provided for miscellaneous administrative-type activities and building costs in support of Defense Programs. (Comparability estimate only -- these activities were funded in the Departmental Administration account.)	Provided for miscellaneous administrative-type activities and building costs in support of Defense Programs. (Comparability estimate only -- activities funded in the Departmental Administration account.)	Provide for miscellaneous administrative-type activities and building costs in support of Defense Programs. Provides for Senior Executive Service awards and workman's compensation for Defense Programs employees. The Headquarters Working Capital Fund assessments were calculated as follows: Building rent/maintenance based on estimate of where people will be located (percent of total); printing and graphics, copying, postage, supplies based on usage chargeback; and telephones and AOSS based on itemized cost plus rate per line or workstation.

FUNDING LEVELS:

$6,526	$6,612	$7,040

LOS ALAMOS COMMUNITY ASSISTANCE PROGRAM provides assistance payments to the Los Alamos County and the Los Alamos School Board to compensate for the lack of an industrial or commercial tax base for the county. The current contracts with the Los Alamos County municipalities and the Los Alamos County School Board expires June 30, 1996. By authority of Public Law 104-106 FY 1996 National Defense Authorization Act, dated February 10, 1996, assistance payments are authorized to continue through June 30, 1997. If further assistance is required after this time, a report and plan describing the actions required to eliminate the need for further assistance for the school board or the County, including a proposal for legislative action to carry out the plan, is to be provided to the Authorization committees.

PROGRAM GOALS/ONGOING RESPONSIBILITIES:

- Provide assistance according to agreements negotiated under Public Law 94-187, the Atomic Energy Community Act of 1955, as amended.

- In accordance with Section 3161 of H.R. 104-450, Conference Report to Accompany the National Defense Authorization Act for FY 1996, develop a report and plan describing action required to eliminate further assistance.

- Distribution of funding is as follows:

	FY 1995	FY 1996	FY1997
Civic Activities	$ 30	$ 30	$ 30
Los Alamos County Assistance Payments to:			
Municipalities	2,837	2,839	2,839
Schools	8,123	8,421	8,421
	$ 10,990	$ 11,290	$ 11,290

CHANGE FROM FY 1996:

No change in funding.

FUNDING LEVELS:

$ 10,990	$ 11,290	$ 11,290

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Weapons Program Directon
Capital Equipment, General Plant Projects, & Construction Project Costs
Detail and Crosscut Dollars in Thousands

	Prior Years	Fiscal Year 1995	1996	1997	$ CHG	% CHG
OPERATIONS & MAINTENANCE						
Capital Equipment						
Basic		$ 354	$ 387	$ 395	$ 8	2%
Total, Capital Equipment		$ 354	$ 387	$ 395	$ 8	2%

Other Defense Activities

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OTHER DEFENSE ACTIVITIES

VOLUME I

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Other Defense Activities					
Nonproliferation and National Security					
Verification and control technology					
Nonproliferation and verification R&D	216,353	210,718	194,919	-15,799	-7.5%
Arms control	72,437	145,057	181,244	36,187	24.9%
Intelligence	31,729	30,957	29,185	-1,772	-5.7%
Total, Verification and control technology	320,519	386,732	405,348	18,616	4.8%
Nuclear safeguards and security	52,761	46,172	47,208	1,036	2.2%
Security investigations	32,799	20,000	22,000	2,000	10.0%
Emergency management	13,224	16,866	16,794	-72	-0.4%
Program direction	85,447	82,809	95,622	12,813	15.5%
Total, Nonproliferation and National Security	504,750	552,579	586,972	34,393	6.2%
Environment, Safety and Health	70,877	69,656	63,800	-5,856	-8.4%
Worker and Community Transition	124,144	81,688	67,000	-14,688	-18.0%
Fissile materials control and disposition	50,246	70,269	93,796	23,527	33.5%
International nuclear safety	60,400	30,000	66,200	36,200	120.7%
Nuclear security	——	——	6,000	6,000	——
Naval Reactors	726,290	682,198	663,932	-18,266	-2.7%
Subtotal, Other defense activities	1,536,707	1,486,390	1,547,700	61,310	4.1%
Use of prior year balances	-91,822	-12,463	——	12,463	100.0%
Total, Other Defense Activities	**1,444,885**	**1,473,927**	**1,547,700**	**73,773**	**5.0%**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ATOMIC ENERGY DEFENSE ACTIVITIES
OTHER DEFENSE ACTIVITIES

PROPOSED APPROPRIATION LANGUAGE

For Department of Energy expenses, including the purchase, construction and acquisition of plant and capital equipment and other incidental expenses necessary for atomic energy defense weapons activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion, and the purchase of passenger motor vehicles (not to exceed 2 for replacement only), [$1,373,212,000] $1,547,700,000 to remain available until expended.

EXPLANATION OF CHANGE

Changes in appropriation language relate only to the numbers of vehicles to be acquired.

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In recent years, the worldwide proliferation of Weapons of Mass Destruction (WMD) and their missile delivery systems has emerged as one of the most serious dangers confronting the United States. This is a continuing and evolving problem with far-reaching consequences for international security and stability.

At least 20 countries -- some of them hostile to the United States -- already have or may be developing WMD through the acquisition of dual-use technology, indigenous development and production, and/or support from rogue supplier states.

The President has made nonproliferation one of the nation's highest priorities. As the preeminent agency in nuclear materials and weapons technology and control, the Department of Energy (DOE), through its Office of Nonproliferation and National Security, is uniquely suited to provide leadership in national and international efforts to reduce nuclear weapons worldwide; secure and prevent the spread of nuclear materials, technology and expertise; roll back nuclear weapons development programs; avoid proliferation surprise; and respond to emergencies.

In order to reduce the international proliferation threat, the Office of Nonproliferation and National Security is focusing its resources and expertise on the following near-term priorities:
(1) securing nuclear materials, technology, and expertise in Russia and the Newly Independent States; (2) maintaining effective protection, control, and accountability of nuclear materials, technology, and expertise in the United States; (3) limiting weapons-usable fissile materials worldwide; (4) ensuring transparent and irreversible nuclear reductions worldwide; (5) supporting the completion of a Comprehensive Test Ban Treaty (CTBT) in 1996; (6) developing and integrating a program for preventing, detecting and responding to nuclear terrorism and smuggling; (7) controlling nuclear exports; and (8) strengthening the nuclear nonproliferation regime. Because of the unique scientific, technical, analytical, and operational capabilities of the Department and its National Laboratories, we will effectively and efficiently accomplish these near-term priorities by marshaling and integrating our resources and nonproliferation activities.

Some of our most important international activities include: conducting the government-to-government and laboratory-to-laboratory programs of cooperation between U.S. nuclear experts and their counterparts at nuclear facilities and institutes in the former Soviet Union to improve materials protection, control and accountability; assisting Russia and the Newly Independent States in establishing and enhancing nuclear material export control systems; developing technologies and systems to detect the proliferation of WMD, to monitor and verify existing treaties, and to prepare for the CTBT; conducting critical operations in cooperation with the Democratic Peoples Republic of Korea (DPRK) to stabilize, can, and safely store spent nuclear fuel in the DPRK in order to freeze the North Korean nuclear weapons program and to enable the application of effective IAEA safeguards; working with the private sector to engage WMD weapons

scientists, engineers, and technicians in the former Soviet Union in activities which reduce the proliferation threat, and providing technical support for long-term monitoring of Iraqi facilities and other nuclear safeguards and emergency programs of the International Atomic Energy Agency (IAEA). In addition, we are providing unique and in-depth technical, arms control, intelligence, research and technology expertise as part of the U.S. Government's integrated efforts to conclude negotiations, prepare for entry into force, and implement a CTBT. We also provide emergency management experts to assist other foreign governments in reviews of their emergency preparedness plans and capabilities. DOE continues to contribute to National Intelligence Estimates and to support the Non-Proliferation Center in assessing the activities of emerging nuclear weapons states and terrorist organizations (the demand side of the equation) and nuclear supplier states or other sources, such as theft and smuggling of nuclear materials (the supply side of the equation).

In concert with our international activities, we are responsible for wide-ranging activities to accomplish nonproliferation and national security goals in the United States. These activities include: directing a rigorous safeguards and security program for the entire Department of Energy complex, thereby ensuring the demonstrated security of our own nuclear materials, technology and expertise; declassifying millions of DOE documents while protecting critical information that has the potential to facilitate the proliferation of weapons of mass destruction; managing and improving the Department's emergency management and response capability and providing assistance to other government agencies as well as state, tribal, and local governments; and maintaining a security investigations and reinvestigations program for both Federal and contractor employees of the Department. DOE also provides technical, analytical, policy and implementation support to the efforts of the nation's policy community to deal with nonproliferation issues.

In FY 1997, the Department will achieve its nonproliferation and national security priorities by: (1) accelerating efforts to provide enhanced materials protection, control and accountability for fissile materials in Russia and the Newly Independent States; (2) cooperating with authorities in the former Soviet Union to redirect intellectual capital through the science and technology centers, the Industrial Partnering Program, and export controls; (3) concentrating efforts toward limiting the production and use of weapons-usable fissile materials in the civil sector by reducing and eventually eliminating the use of highly enriched uranium and promoting alternatives to the civil use of plutonium, expansion of the Reduced Enrichment for Research and Test Reactors (RERTR) Program, and by purchasing, where appropriate, at-risk weapons-usable nuclear materials; (4) providing necessary research, technology development, analysis, and training as part of the U.S. Government's efforts to complete and implement a CTBT; (5) developing and implementing an integrated approach to nuclear smuggling, terrorism, and emergency response; (6) confirming Russian and U.S. nuclear weapon dismantlement through mutual reciprocal inspections and other activities which enhance transparency and irreversibility; (7) strengthening the international nonproliferation regime through measures which include our efforts in North Korea, negotiation of an international fissile material cutoff convention and cooperation with and support for the IAEA safeguards programs, including the facilitation of IAEA inspections in the United States. The Department will also maintain an emergency management program for response to domestic hazards and to provide assistance internationally. Finally, in support of all of the Department's nonproliferation capabilities, we will continue to develop technologies and systems for detecting, characterizing, and monitoring proliferant activities worldwide.

FY 1997 CONGRESSIONAL REQUEST SUMMARY TABLE
(Dollars in thousands)

NONPROLIFERATION AND NATIONAL SECURITY (NN)	FY 1995 Non-Comp. Approp.	FY 1995 Comparable Approp.	FY 1996 Non-Comp. Approp.	FY 1996 Comparable Approp.	FY 1997 Budget Request
Nonproliferation and Verification R&D					
Program	$221,507	$216,353	$246,142	$210,718	$194,919
Program Direction	0	5,154	0	5,424	5,900
Total Nonproliferation & Verification R&D	221,507	221,507	246,142	216,142	200,819
Arms Control					
Program	86,763	72,437	160,964	145,057	181,244
Program Direction	0	14,326	0	15,907	17,266
Total Arms Control	86,763	86,763	160,964	160,964	198,510
Intelligence					
Program	42,981	31,729	42,336	30,957	29,185
Program Direction	0	11,252	0	11,379	12,701
Total Intelligence	42,981	42,981	42,336	42,336	41,886
Nuclear Safeguards and Security					
Program	89,781	52,761	84,395	46,172	47,208
Program Direction	0	37,020	0	38,223	45,706
Total Nuclear Safeguards and Security	89,781	89,781	84,395	84,395	92,914
Security Investigations					
Program	32,799	32,799	20,000	20,000	22,000
Emergency Management					
Program	0	13,224	23,321	16,866	16,794
Program Direction	0	12,344	0	6,455	6,277
Total Emergency Management	0	25,568	23,321	23,321	23,071
Hearings and Appeals					
Program Direction	0	0	0	0	2,000
Working Capital Fund					
Program Direction	0	5,351	0	5,421	5,772
Subtotal, NN Program	473,831	419,303	577,158	469,770	491,350
Subtotal, NN Program Direction	0	85,447	0	82,809	95,622
Total, NN	473,831	504,750	577,158	552,579	586,972
Adjustment-Use of PY Balances	(32,410)	(32,410)			
Grand Total, Nonproliferation and National Security	$441,421	$472,340	$577,158	$552,579	$586,972

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OTHER DEFENSE ACTIVITIES
(Tabular dollars in thousands, Narrative in whole dollars)
NONPROLIFERATION AND VERIFICATION RESEARCH AND DEVELOPMENT

PROGRAM MISSION

The Nonproliferation and Verification Research and Development Program is the only U.S. Government program dedicated to conducting applied research, development, testing, and evaluation of science and technology for strengthening the United States response to the threats to national security and to world peace posed by the proliferation of nuclear weapons and special nuclear materials. Activities center upon the design and production of operational sensor systems needed for proliferation detection, treaty verification, nuclear warhead dismantlement initiatives, and intelligence activities. Included is support for the timely transfer of prototyped and tested systems to operational users, especially other U.S. Government agencies. The program also supports subsequent commercialization of technologies and contributes to the Small Business Innovation Research Program.

The GOAL of the Nonproliferation and Verification Research and Development Program is to:

Enhance U. S. National Security by reducing the global nuclear danger through customer-driven research and development to provide the science and technology required for treaty verification, nuclear material control, and the early detection and characterization of the proliferation of nuclear weapons and special nuclear materials, in both cooperative and non-cooperative environments.

The OBJECTIVES related to this goal are:

1. Develop and demonstrate the technologies needed to detect the early stages of proliferant nations' nuclear weapons development programs.

2. Develop and demonstrate the technologies needed to detect and deter the smuggling of nuclear weapons, components, and special nuclear materials in noncooperative environments.

3. Provide the U.S. Government with the scientific and technical capability to verify existing and future nuclear treaties using sensors and algorithms for detecting, locating, identifying, and characterizing nuclear explosions underground, underwater, in the atmosphere, and in space.

4. Develop and demonstrate technologies for: nuclear materials protection, control, and accounting; nuclear warhead dismantlement cooperative monitoring; confidence building measures; reduction transparency measures; and advanced sensor systems for the intelligence community.

5. Maintain the focused, cost-effective nonproliferation and treaty verification technology base necessary to respond both to current customer requirements and to emerging new threats.

PERFORMANCE MEASURES:

1. Ability to meet customer need dates for delivery of technologies for proliferation detection and arms control verification operational missions.

2. Selection by U.S. nonproliferation and arms control policy community of demonstrated candidate technologies to address current requirements.

3. Development of new sensors/concepts which increase the national capability for early detection of the proliferation of weapons of mass destruction.

4. Successful development of sensors with increased sensitivity which yield higher levels of confidence in worldwide nuclear explosion surveillance capability.

5. New sensors and algorithms developed and provided to customers to enable the U.S. Government to verify a Comprehensive Test Ban Treaty (CTBT).

6. Improvement in U.S. Government technical capabilities to detect and deter nuclear smuggling.

7. Dual-use technology spin-offs that lead to commercialization by U.S. industry of sensors and instruments developed for proliferation detection and treaty monitoring requirements.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Provided continuous worldwide monitoring for atmospheric nuclear explosions by sensors designed, developed, and produced by the Nonproliferation and Verification Research and Development Program and deployed upon the Global Positioning System satellite constellation.

- Successfully operated the Department's first wholly designed, developed, and operated small satellite, an experiment/demonstration called the Array of Low Energy X-ray Imaging Sensors (ALEXIS), which is a test-bed for treaty verification technology.

- Completed the first all-inclusive nuclear proliferation signatures study. The study identifies chemicals used in the nuclear weapons life-cycle from mining to dismantlement. This study will enable future research efforts to focus on high payoff areas.

- Developed measurement technologies and procedures to support the DOE/MINATOM and U.S. /Russian agreements for mutual reciprocal inspections of U.S. and Russian dismantled nuclear weapons and for the purchase of Russian HEU.

- Continued to develop improved lasers and standoff sensors for remote optical detection and characterization of multiple chemical effluents related to proliferation activities.

- Continued development of synthetic aperture radar (SAR) autofocus algorithms, sensitive change detection algorithms, and interferometric SAR (IFSAR) terrain mapping algorithms for treaty verification purposes, and provided DoD with algorithms for their use in battle damage assessment and terrain elevation determination.

- Transferred a significant number of high-risk, high-payoff projects directly to the user community in support of nonproliferation activities.

- Implemented first year of directed responsibility for Comprehensive Test Ban Treaty (CTBT) research and development for underground, underwater, atmospheric, and space nuclear detonation detection.

- Was instrumental in initiating the Presidentially established interagency Nonproliferation and Arms Control Technology Working Group (DOE co-chairs with DOD and ACDA); this group ensures effective interagency coordination of science and technology for arms control and nonproliferation, and guards against redundant programs within and among departments and agencies.

- Provided requested technical support (including monitoring technology and in-country support) for negotiations with North Korea regarding the use and disposition of heavy fuel oil.

- Initiated a focused research effort on countering nuclear smuggling in response to intelligence and law enforcement needs.

RESEARCH AND DEVELOPMENT
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Onsite Systems	40,047	39,972	0	39,972	32,972
Regional Monitoring Systems	38,640	40,297	-2,100	38,197	38,197
Remote Sensing Systems	78,040	77,424	-824	76,600	76,137
Advanced Systems	46,126	43,949	-500	43,449	35,449
Program Direction	0	2,000	-2,000	0	0
Facilities Operations	13,500	12,500	0	12,500	12,164
Subtotal, Operations and Maintenance	216,353	216,142	-5,424	210,718	194,919
Adjustment *	-3,547 1/	30,000 2/	-30,000 2/	0	0
TOTAL, Research and Development	212,806 3/	246,142	-35,424	210,718 3/	194,919

1/ Use of prior year balances.

2/ Transfer of funds to Nuclear Energy for Russian Reactor Safety.

3/ Program Direction Funding was transferred to the Program Direction Decision Unit; see the comparability matrices for FY 1995 and FY 1996 included in the Nonproliferation and National Security Executive Summary.

RESEARCH AND DEVELOPMENT
PROGRAM FUNDING BY SITE
(Dollars in Thousands)

Laboratory and Facility Funding	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Argonne National Lab (East)	2,699	2,000	0	2,000	1,950
Brookhaven National Lab	4,578	4,400	0	4,400	2,600
Idaho Operations Office	3,986	4,500	0	4,500	2,700
Lawrence Livermore National Lab	38,150	36,980	0	36,980	37,980
Los Alamos National Lab	56,086	55,153	0	55,153	52,150
Nevada Operations Office	4,164	3,650	0	3,650	2,050
K-25 Site, Oak Ridge	5,151	4,190	0	4,190	3,190
Pacific Northwest Laboratory	14,425	15,880	0	15,880	14,865
Sandia National Labs	67,870	66,210	0	66,210	65,210
Savannah River Technology Center	2,265	2,550	0	2,550	1,550
Washington Headquarters	16,979	20,629	-5,424	15,205	10,674
Subtotal	216,353	216,142	-5,424	210,718	194,919
Adjustment *	-3,547 *	30,000 **	-30,000 **	0	0
TOTAL	212,806	246,142	-35,424	210,718	194,919

* Use of prior year balances

** Transfer of funds to Nuclear Energy for Russian Reactor Safety.

NONPROLIFERATION AND VERIFICATION RESEARCH AND DEVELOPMENT

ONSITE SYSTEMS

I. Mission Supporting Goals and Objectives

Develop and demonstrate cooperative and noncooperative handheld and transportable monitoring technologies. Onsite monitoring research and development includes sensor development and integration of unattended inspection technology to support requirements for bilateral and multilateral nonproliferation treaties and agreements on weapons of mass destruction. Radiation detectors, unattended ground sensors, and technology to detect and characterize underground facilities are under development in coordination with other federal agencies.

All of these efforts are focused on the common themes of developing and demonstrating detection technologies and analytical methods for timely support of both current and future U.S. Government policies and initiatives. The program is driven by both evolving and long-standing priorities of the arms control and intelligence communities. This program brings the unique technical expertise of the national laboratories to bear on major nonproliferation and arms control problems and opportunities facing the nation.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Onsite Systems	$ 40,047	$ 39,972	$ 32,972	$ -7,000	-17.5
Total, Onsite Systems	$ 40,047	$ 39,972	$ 32,972	$ -7,000	-17.5

III. Performance Summary:

FY 1995 Accomplishments:

- Developed measurement technologies and procedures to support the DOE/MINATOM agreement for mutual reciprocal inspections of U.S. and Russian dismantled nuclear weapons and the U.S./Russian agreement for the purchase of HEU.

- Participated in the first joint U.S./Russian demonstration and operation of on-site cooperative remote monitoring technologies at selected U.S. and Russian fissile material storage facilities.
- Completed six (6) Airborne Multisensor Pod System (AMPS) airborne missions supporting DOE proliferation detection and other government agency requirements, using state-of-the-art remote sensing systems.
- Demonstrated remote unattended tracking technologies and concepts for nuclear warheads slated for dismantlement.
- Received three "R&D100 Awards" for innovation and technical excellence.

FY 1996 Accomplishments (to date and planned):

- Collected data with the Airborne Multisensor Pod System (AMPS) in response to U.S. Navy and Intelligence Community requirements for advanced data processing and target recognition research and development; formed a partnership with U.S. industry and Kazakstan to collect and share remote sensing data.
- Developed remote cooperative monitoring systems for implementation by the IAEA to enhance global safeguards.
- Commercialized radiation detection systems and demonstrated a portable gas chromatograph/mass spectrometer.
- Demonstrated and field tested geophysical methods to detect underground structures in support of Department of Defense Counterproliferation Program.
- Continued to develop micro-sensor technologies for nonproliferation applications.
- Completed field trials of measurement concept for estimating plutonium production from graphite reactors.
- Developed technology for International Atomic Energy Agency (IAEA) implementation of the Presidential offer regarding excess special nuclear materials from the U.S. weapons program.
- Initiated a program to enhance field and laboratory capabilities for nuclear smuggling forensic analysis.

FY 1997 Planned Accomplishments:

- Develop alternate safeguards technologies to support negotiations between U.S. and member states of the Treaty on the Nonproliferation of Nuclear Weapons (NPT).
- Continue the development and field testing of advanced radiation and chemical sensors to support forensics analysis in response to nuclear smuggling.
- Complete remote unattended cooperative monitoring sensors development programs.
- Conduct full field test of methods and technologies to detect underground facilities from an airborne platform.
- Exploit micro-technologies for use in cooperative hand-held and remote unattended sensor systems.

Explanation of funding changes from FY 1996 to FY 1997

- TERMINATE AIRBORNE MULTISENSOR POD SYSTEM (AMPS).
  - o All existing sensors pods used to test and evaluate multisensor data fusion concepts will be redirected.
  - o Tools to reduce data overload and to merge data from multiple sensors will not be developed to identify possible proliferant activities.
  - o Multisensor data will no longer be provided to other participating civil federal and state agencies, defense agencies, the intelligence community, and nongovernmental organizations for their applications; and will no longer be available on Internet to universities and other potential users.

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REGIONAL MONITORING SYSTEMS

I. Mission Supporting Goals and Objectives:

Develop and demonstrate technologies for nuclear proliferation detection in two program areas: Comprehensive Test Ban Treaty Research and Development (CTBT R&D) and Effluent Detection and Analysis Research and Development. CTBT R&D, in preparation for both international and U.S. national verification of a CTBT, addresses seismic monitoring, hydroacoustic monitoring, atmospheric radionuclide monitoring, infrasound monitoring, on-site inspection, and automated data processing. The Effluent Detection and Analysis Research and Development program area develops real time, field-deployable systems to detect very low level concentrations of chemicals indicative of proliferation activities.

On August 11, 1995 President Clinton stated, "One of my administration's highest priorities is to negotiate a Comprehensive Test Ban Treaty.... I am committed to pursuing a comprehensive research and development program to improve our treaty-monitoring capabilities and operations." National responsibility for executing CTBT R&D has been consolidated in this Department of Energy program.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Regional Monitoring Systems	$ 38,640	$ 40,297	$ 38,197	$ -2,100	-5.2
Total, Regional Monitoring Systems	$ 38,640	$ 40,297	$ 38,197	$ -2,100	-5.2

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III. Performance Summary:

FY 1995 Accomplishments:

- Initiated a seismic field test program using mining blasts of opportunity already being conducted by the U.S. mining industry. The cooperative program results in the ability to discriminate seismic signals generated by various mining practices from seismic signals generated from underground nuclear explosions, while the mining industry receives data that can help them improve their operations.
- Began acquisition of basic geological and geophysical information for the Middle East, North Africa and western China as a first step in developing region specific seismic event location and discrimination algorithms.
- Developed and began field testing at McClellan AFB of a fully automated near real time radionuclide particulate sampler/analyzer.
- Reaffirmed the value, through peer review, of monitoring the noble gas xenon as a integral part of international monitoring system. Developed a laboratory prototype xenon collection/analysis system specific to the CTBT international monitoring application.
- Developed preliminary specifications for a fixed hydroacoustic cabled system appropriate for use in the international monitoring systems.
- Initiated studies of acoustic blockage to help propose locations for deployment of the international hydroacoustic monitoring assets.
- Refined and tested transmission of infrasound data to the Air Force Technical Applications Center (AFTAC) in their role as the U.S. National Data Center under a CTBT and began the estimation of proposed network detection capabilities in support of technology monitoring options under negotiation for a CTBT at the Conference on Disarmament.
- Developed proof of concept prototypes for new types of event detection algorithms and analyst event evaluation displays for CTBT monitoring.
- Completed initial design of a CTBT knowledge base. This knowledge base will contain the results of all research areas to aid in automated data processing of events.
- Completed a computer model to predict the travel time, relevant to on site inspection under a CTBT, of radioactive noble gases from a nuclear explosion to the surface and determined that seismicity from mining activity can resemble nuclear explosion aftershock sequences under certain conditions.

- Developed and demonstrated a new generation of instruments that provide more timely analyses of environmental samples for key nuclear proliferation effluent signatures using real-time detection, improved field collection methods, and automated laboratory techniques.

- Began field testing of instruments that provide standoff detection of airborne signatures by unique infrared and millimeter-wave spectrometry.

- Transferred to customers four effluent analysis instruments that will reduce costs and provide more timely and reliable analyses using automation techniques.

- Completed the first all-inclusive nuclear proliferation signatures study. The study identifies chemicals used in the nuclear weapons life-cycle from mining to dismantlement. This study will enable future research efforts to focus on high payoff areas.

FY 1996 Accomplishments (to date and planned):

- Continue to characterize seismic signals from mining blasts of opportunity representative of mining practices used by the U.S. mining industry. Conduct with the U.S. Army Corp of Engineers field experiments addressing the effectiveness of decoupling (muffling) seismic signals in cavities of varying configurations and in different geologic media. The decoupling results will aid in the ability to analyze seismic signals for CTBT monitoring purposes.

- Continue acquisition of basic geological and geophysical information for the Middle East, North Africa and western China. This information will lead to ways to make seismic discrimination more portable from one region to the next, despite major geologic structure differences.

- Complete field testing at McClellan AFB of a fully automated near real time radionuclide particulate sampler/analyzer and initiate commercialization.

- Initiate field testing of a prototype xenon collection/analysis system specific to the CTBT international monitoring application.

- Develop refined specifications for a fixed hydroacoustic cabled system appropriate for use in the CTBT international monitoring systems and facilitate international commercial availability of a such a system.

- Continue the study of deep water acoustic coverage worldwide and test proposed hydroacoustic networks against credible evasion scenarios.
- Complete the selection of appropriate wide band infrasound sensors and continue the estimation of proposed network detection capabilities; initiate prototype development of CTBT infrasound station for the U.S. National Data Center.
- Evaluate prototypes for event detection and discrimination algorithms and analyst event evaluation displays.
- Develop optimal on site inspection techniques for extracting radioactive noble gases from the soil, assess the utility of low-frequency electromagnetic pulse detection for declared explosion confirmation, and assess indicators of shocked ground.
- Complete development of two standoff spectrometry instruments for transfer of technology to customers and commercial manufacturers.
- Fabricate a prototype unit to user specifications for rapid, nondestructive elemental analysis of solids.
- Develop microminiaturized instrumentation to reduce the size and costs of chemical analysis for detection of nuclear proliferation signatures.

FY 1997 Planned Accomplishments:

- Complete and evaluate geophysical and geological models for the Middle East, North Africa and western China, synthesize results into the CTBT knowledge base for automated data processing of events, and transfer models to customers for testing.
- Deliver algorithms for regional seismic discrimination to customer for testing and provide expert advice to support implementation.
- Plan, conduct and complete procedures for calibration of newly installed seismic arrays and participate in internationally planned field experiments.
- Test and finalize development of an automated near-real-time radionuclide particulate sampler/analyzer.
- Complete field testing of a prototype xenon collection/analysis system specific to the CTBT international monitoring application and begin commercialization.

- Complete the assessment of deep water acoustic coverage including discrimination of natural events from evasively tested nuclear explosions and begin to facilitate the commercial development of a prototype hydroacoustic monitoring station.

- Complete the infrasound network detection estimates and determine false alarm rates; complete the simulation code for calculating the global propagation of infrasound signals; develop appropriate signal processing algorithms; begin transfer of prototype CTBT infrasound station to the U.S. National Data Center.

- Develop enhanced algorithms and display prototypes using integrated, multi-source and advanced processing techniques.

- Complete software utilities and procedures for automated data processing of events for the CTBT knowledge base.

- Transfer On-Site Inspection research results to agencies responsible for carrying out on-site inspection under a Comprehensive Test Ban Treaty.

- Initiate experiments to determine the value of organic signatures to nuclear proliferation detection and adapt integrated circuit technology to directly measure fissionable materials in field samples.

NONPROLIFERATION AND VERIFICATION RESEARCH AND DEVELOPMENT

REMOTE SENSING SYSTEMS

I. Mission Supporting Goals and Objectives

Develop and demonstrate sensors for space-based monitoring of nuclear explosions and for the early detection of clandestine nuclear weapons development. The Test Ban Treaty Verification Technology program designs, develops, produces, and provides operational system technical support for the nuclear explosion monitoring sensors needed to meet U.S. requirements for detection, identification, location, and characterization of nuclear explosions in the atmosphere and in space. The Proliferation Detection Technology Program conducts phenomena modeling, experimental sensor development, signature exploitation methodologies and satellite demonstrations for detection, identification, and characterization of nuclear production and processing activities.

The Test Ban Treaty Verification Technology program, which has from the beginning been a joint program with the U.S. Air Force, is one of the Department of Energy's longest-standing nonproliferation programs. The concept of satellite-borne nuclear explosion surveillance came about during interagency discussions from 1959 to 1962, leading to deployment of the original Vela explosion sensors. During the 36 years of this program, 101 satellite and space-probe payloads have been launched. The national need for worldwide cognizance of any nuclear explosions that might occur is now as important as ever in this time of high nuclear proliferation concern.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Remote Sensing Systems	$ 82,540	$ 77,424	$ 76,137	$ -1,287	-1.7
Total, Remote Sensing Systems	$ 82,540	$ 77,424	$ 76,137	$ -1,287	-1.7

III. Performance Summary:

FY 1995 Accomplishments:

- Provided continuous worldwide monitoring for atmospheric nuclear explosions by sensors designed, developed, and produced by the Nonproliferation and Verification Research and Development Program and deployed upon the Global Positioning System satellite constellation.
- Successfully operated the Department's first wholly designed, developed, and operated small satellite, an experiment/demonstration called the Array of Low Energy X-ray Imaging Sensors (ALEXIS), which is a test-bed for treaty verification technology.
- Produced and delivered two nuclear explosion detection sensor systems (each system consists of several individual sensors) to the Air Force for integration on Block IIR Global Positioning System (GPS) satellites.
- Provided support for the launch of a Defense Support Program (DSP) satellite carrying a DOE nuclear explosion detection system.

FY 1996 Accomplishments (to date and planned):

- Produce and deliver seven nuclear explosion detection sensor systems to the Air Force for the Block IIR Global Positioning System (GPS) satellite.
- Support the launch of Global Positioning System (GPS) satellites carrying DOE nuclear explosion detection systems.
- Launch the Fast On-orbit Recording of Transient Events (FORTE) small satellite to develop and demonstrate next generation techniques for detecting and characterizing the electromagnetic pulse from nuclear explosions in the atmosphere.
- Continue development of sensors and subsystems for integration on the Multispectral Thermal Imager (MTI) small satellite, which will demonstrate and evaluate multispectral and thermal imaging technologies for the passive, noncooperative detection and characterization of proliferant activities.
- Start design and development of a high-spectral resolution imaging spectroradiometer to detect the early stages of nuclear proliferation activities.

- Develop small satellite-based sensor package to detect near-space nuclear explosions.

FY 1997 Planned Accomplishments:

- Fabricate and deliver four Global Positioning System (GPS) satellite Block IIR nuclear explosion detection flight systems.
- Complete development of sensors and subsystems and start integration of the Multispectral Thermal Imager (MTI) small satellite to develop and demonstrate next generation techniques for characterizing, and monitoring nuclear production and processing activities.
- Design, fabricate and conduct laboratory and field tests of novel sensor designs and systems to provide improved capability to detect and characterize proliferation activities and to monitor nuclear treaties from remote distances.
- Start conceptual design of synthetic aperture radar for proliferation detection application on small satellites.

NONPROLIFERATION AND VERIFICATION RESEARCH AND DEVELOPMENT

ADVANCED SYSTEMS

I. Mission Supporting Goals and Objectives:

Develop and demonstrate laser-based remote chemical detection, multisensor systems research, and other innovative proliferation detection technologies. Laser-based remote detection will conduct research and development for detecting trace levels of airborne chemical effluents. Multisensor systems research will develop advanced computer processing methods for merging large amounts of data from multiple sensors to improve treaty verification and proliferation detection capabilities. Technology development will provide innovative state-of-the-art scientific and engineering methods to meet nonproliferation needs.

This program is instrumental in developing new ideas that reflect imagination and initiative, exploring technologies that could be useful in extending U.S. capabilities for proliferation detection and treaty verification. It is imperative for long-term national security that there continues to be a strong science and technology base focused on these purposes.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Advanced Systems	$ 49,687	$ 43,949	$ 35,449	$ -8,500	-19.3
Total, Advanced Systems	$ 49,687	$ 43,949	$ 35,449	$ -8,500	-19.3

III. Performance Summary:

FY 1995 Accomplishments:

- Continued development of improved lasers and standoff sensors for remote optical detection and characterization of multiple chemical effluents related to proliferation activities; successfully completed a major field test in July.
- Completed chemical signature study as suggested by JASON review; commenced active collaboration with Air Force Phillips Laboratory in development of CO_2 LIDARs, as directed by Congress.

- Completed field tests which demonstrated new capabilities in lidar remote chemical detection.
- Provided DOE developed LIDAR technology to the U.S. Army Edgewood Research and Development and Engineering Center (ERDEC) for use in ancillary programs for battlefield detection of chemical and biological weapons.
- Continued development of synthetic aperture radar (SAR) autofocus algorithms, sensitive change detection algorithms and interferometric SAR (IFSAR) terrain mapping algorithms for treaty verification purposes, and provided DoD with algorithms for their use in battle damage assessment and terrain elevation determinations.
- Measured and modeled light reflection and emission of complex objects, such as the variation with illumination and look angles in images taken in the visible to thermal infrared regions of the spectrum.
- Developed adaptive processing hardware (digital signal processing, neural network, and fuzzy logic VME boards) for efficient implementation of multi-thermal image pattern recognition algorithms, tested first generation elastic backscatter LIDAR feature extractor for plume recognition and tracking and initiated development of neural network technology to support a nuclear facility anomalous activity monitoring system.
- Transferred a significant number of high-risk, high-payoff projects directly to the user community in support of nonproliferation activities.

FY 1996 Accomplishments (to date and planned):

- Perform ground-based field tests of laser remote sensing systems to extend system performance beyond current state of the art, and continue signature work on excursions from baseline scenarios to broaden the performance envelope of remote chemical detection.
- Conduct a joint airborne LIDAR test with USAF Phillips Laboratory and the Edgewood Research Development and Engineering Center (ERDEC) to demonstrate lidar utility and to strengthen the collaboration between researchers and users in the remote chemical detection of proliferation activities.
- Design and deliver an integrated prototype system for cost effective implementation of complex change detection algorithms and adapt algorithms to other synthetic aperture radar (SAR) systems for dual use applications.
- Complete data collection and characterization of daytime phenomena influencing thermal signatures, and develop initial signal processing algorithms for infrared radiometric compensation; exploit spatial, spectral and observation angle variation properties of materials.
- Develop integrated software and electronic circuitry for specific applications to filter large volumes of spectral data to identify chemical signatures related to nonproliferation activities; build, along with industrial partners, an adaptive electronic processor for computer-assisted event or object recognition applications.

FY 1997 Planned Accomplishments:

- Continue joint LIDAR development program with USAF Phillips Laboratory and Army Edgewood Research Development, and Engineering Center.
- Conduct final ground tests for LIDAR systems for remote detection of chemicals at the Nevada Test Site, and begin follow-on airborne experimentsof advanced LIDAR systems.
- Continue development of complex phase history algorithms to enhance the information content of synthetic aperture radar (SAR) data in support of nonproliferation.
- Develop algorithms to extract higher quality information from infrared sensor data to extend capabilities for detecting proliferation activities.
- Continue to develop adaptive software and electronic circuits for smart computer-assisted sensor data analysis.
- Initiate new nonproliferation technology development projects which respond to other user agency requirements.

Explanation of funding changes from FY 1996 to FY 1997

- REDUCE CHEMICAL ANALYSIS BY LASER INTERROGATION OF PROLIFERATION EFFLUENT (CALIOPE) PROGRAM
  - o The exploitation of the recent breakthrough in detection and identification technologies will be limited to a smaller list of chemicals indicative of nuclear weapons programs.
  - o Airborne demonstrations and continued development will be limited to only the more mature/promising of the breakthrough technologies, eliminating development and/or demonstration of other significant proliferation detection capabilities.
  - o Cessation of R&D for one or more lidar techniques will adversely affect DOD programs leveraging from the DOE lidar investment.

NONPROLIFERATION AND VERIFICATION RESEARCH AND DEVELOPMENT

FACILITIES OPERATIONS

I. Mission Supporting Goals and Objectives:
Funding required to meet systems fabrication, technology research and development, high priority analytical needs, and Headquarters secure communications and classified information control requirements.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 13,500	$ 12,500	$ 12,164	$ -336	-2.7
Total, Facilities Operations	$ 13,500	$ 12,500	$ 12,164	$ -336	-2.7

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OTHER DEFENSE ACTIVITIES
(Tabular dollars in thousands, Narrative in whole dollars)

ARMS CONTROL AND NONPROLIFERATION

PROGRAM MISSION

The Arms Control and Nonproliferation Program is the focal point within the Department for activities which support the President's arms control and nonproliferation policies, goals and objectives as well as statutorily-mandated activities. The major functional areas of the program include: Analytical Support; Nuclear Nonproliferation Policy; Reduced Enrichment Research and Test Reactor (RERTR); International Safeguards; Export Control Operations; Treaties and Agreements; International Security; and Materials Protection, Control, and Accounting (MPC&A). The program provides leadership and representation for the Department in the U.S. Government's interagency process, and for the U.S. Government in the national and international arms control and nonproliferation communities and organizations.

The GOAL of the Arms Control and Nonproliferation Program is to: reduce the threat of nuclear proliferation by integrating and orchestrating the Department's assets and efforts, including those of its national laboratories and contractors, in providing major policy and technical support to the U.S. Government's foreign policy and national security objectives in the areas of arms control and nonproliferation, and to the international arms control and nonproliferation communities.

The priority **OBJECTIVES** related to this goal are:

1. Secure Nuclear Materials and Expertise in Russia and the Newly Independent States.

2. Limit Weapon-Usable Fissile Materials.

3. Establish Transparent and Irreversible Nuclear Reductions.

4. Strengthen the Nuclear Nonproliferation Regime.

5. Control Nuclear Exports.

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PROGRAM MISSION - ARMS CONTROL AND NONPROLIFERATION (Cont'd)

PERFORMANCE MEASURES:

1. Number of facilities at which Russia and Newly Independent States establish effective MPC&A programs over their nuclear weapons and materials increases.
2. Number of nuclear smuggling incidents decreases.
3. Number of nuclear weapon states remains constant or is reduced.
4. Number of Nuclear Nonproliferation Treaty (NPT) adherents increases.
5. Transparent and irreversible dismantlement of FSU nuclear warheads increases.
6. The number of inspections of fissile materials removed from nuclear weapons in Russia and the United States increases.
7. Successful negotiations of a Comprehensive Test Ban Treaty are completed.
8. Unilateral nuclear export controls are reduced and eventually replaced with multilateral controls.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Played a pivotal role in achieving an indefinite extension of the Nuclear Nonproliferation Treaty (NPT).
- Provided leadership for DOE and national laboratories' activities aimed at assisting Russia and other states of the Former Soviet Union in critical areas such as export controls, nuclear materials control and accounting, and physical protection.
- DOE's efforts to secure nuclear materials and expertise in Russia and the Newly Independent States have expanded rapidly since their beginning. From one site involving 75 kilograms of highly enriched uranium (HEU) in 1994, the program achieved materials protection, control and accounting (MPC&A) upgrades over 8 tons of plutonium and HEU at 26 facilities in 1995.
- Planned achievements during 1996 will involve hundreds of tons of materials at over 35 facilities. During FY 1997, the intense activity experienced during the past 24 months will continue as upgrades continue at the 17 facilities added during the past six months, and additional facilities are added under cooperation with the Russian Navy and other locations and activities in the former Soviet Union.

- Negotiated and implemented agreement to secure 500 kg of weapons useable highly enriched uranium (HEU) formerly located in Kazakstan.

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ARMS CONTROL AND NONPROLIFERATION
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Analytical Support	15,666	18,098	-2,503	15,595	13,684
Nuclear Nonproliferation Policy	5,463	5,863	-581	5,282	8,587
Reduced Enrichment Research and Test Reactor (RERTR) Program	1,784	3,484	-37	3,447	6,422
International Safeguards	20,429	21,229	-1,550	19,679	19,941
Export Control Operations	15,757	16,077	-483	15,594	15,302
Materials Protection, Control, and Accounting	0	47,000	-1,185	45,815	69,637
Treaties and Agreements	12,643	6,640	-4,179	2,461	4,028
International Security	0	13,600	-389	13,211	19,568
Program Direction	0	5,000	-5,000	0	0
Facilities Operations	695	23,973	0	23,973	24,075
Subtotal, Operations and Maintenance	72,437	160,964	-15,907	145,057	181,244
Adjustment	-2,414 1/	0	0	0	0
TOTAL, Arms Control	70,023 2/	160,964	-15,907	145,057 2/	181,244

1/ Use of prior year balances.

2/ Program Direction Funding was transferred to the Program Direction Decision Unit; see the comparability matrices for FY 1995 and FY 1996 included in the Nonproliferation and National Security Executive Summary.

ARMS CONTROL AND NONPROLIFERATION
PROGRAM FUNDING BY SITE
(Dollars in Thousands)

Laboratory and Facility Funding	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Argonne National Lab (East)	3,865	6,225	-156	6,069	9,505
Brookhaven National Lab	1,406	4,255	0	4,255	6,125
Idaho Operations Office	80	0	0	0	0
Idaho National Engineering Lab	101	0	0	0	0
Lawrence Livermore National Lab	16,150	20,796	0	20,796	24,918
Los Alamos National Lab	17,391	29,384	0	29,384	39,461
Mound Plant	100	0	0	0	0
Nevada Operations Office	350	525	-525	0	0
New Brunswick Lab	0	235	0	235	260
K-25 Site, Oak Ridge	4,499	15,015	-329	14,686	19,615
Pacific Northwest Lab	4,355	15,730	-500	15,230	17,260
Pantex Plant	260	575	0	575	625
Sandia National Labs	11,854	25,905	0	25,905	35,145
Savannah River Operations Office	243	680	0	680	625
Office of Scientific & Technical Information	50	20	0	20	20
Washington Headquarters	1,662	15,802	-14,140	1,662	1,662
All Other	10,071	25,817	-257	25,560	26,023
Subtotal	72,437	160,964	-15,907	145,057	181,244
Adjustment*	-2,414	0	0	0	0
TOTAL	70,023	160,964	-15,907	145,057	181,244

* Use of prior year balances.

ANALYTICAL SUPPORT

I. Mission Supporting Goals and Objectives

Analytical Support provides technical expertise and analytical support for arms control and nonproliferation treaty and agreement policy formulation, negotiation, and implementation at DOE facilities. Emphasis is on measures and verification options for a multilateral fissile material cutoff convention and bilateral cutoff with Russia, and development of monitoring provisions for the U.S. purchase of highly enriched uranium (HEU) from Russian nuclear weapons. Focus is also on implementing a reciprocal monitoring regime of U.S./Russian nuclear weapon dismantlement and fissile materials disposition, procedures for confirming stockpiles of removed materials, and alternative cost-effective dismantlement transparency and chain-of-custody measures. Assistance is provided with implementation of the U.S.-Russian agreement for exchange of technical information on nuclear warhead safety and security and supporting projects to employ FSU nuclear weapon scientists in non-weapon projects. Analytical support and technical expertise is also provided for the Nuclear Nonproliferation Treaty (NPT), negotiating a Comprehensive Test Ban Treaty (CTBT), and developing international nonproliferation inspection approaches.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Analytical Support	$ 15,666	$ 15,595	$ 13,684	$ -1,911	-12.3
Total, Analytical Support	$ 15,666	$ 15,595	$ 13,684	$ -1,911	-12.3

III. Performance Summary:

FY 1995 Accomplishments:

- Developed technical approaches for Russian plutonium (Pu) production reactor monitoring and storage.
- Developed reactor core conversion options to minimize Pu production at Russian Tomsk and Krasnoyarsk facilities.

- Characterized excess U.S. fissile material and developed procedures for International Atomic Energy Agency (IAEA) inspections at Oak Ridge, Hanford, and Rocky Flats.
- Prepared sensitive information disclosure risk assessment for Pu and highly enriched uranium (HEU) component inspections.
- Established radiation signatures and costs for warhead dismantlement at DOE facilities.
- Developed Pu parts measurement procedures and completed draft demonstration agreement with Russians.
- Completed warhead safety and security agreement with Russia.
- Provided policy analysis and technical expert support which enabled the achievement of an indefinite extension of the Nonproliferation Treaty (NPT).
- Provided technical support for Conference on Disarmament (CD) zero-yield Comprehensive Test Ban Treaty (CTBT) and Fissile Material Cutoff Treaty (FMCT) negotiations.
- Resolved National Ignition Facility (NIF) nonproliferation implications.
- Successfully transported 581 kilograms of weapons grade HEU from Kazakstan to the U.S. (Project Sapphire).
- Provided technical expert support negotiation of the Biological Weapons Convention (BWC) mandatory transparency measures.

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FY 1996 Accomplishments (to date and planned):

- Continue analytical and technical support for FMCT negotiators.
- Conduct mock inspections at DOE facilities to assess costs and effectiveness of alternative FMCT transparency and CTBT on-site inspection provisions.
- Continue support for regular IAEA inspection of excess U.S. fissile material at DOE facilities.
- Complete compliance measures negotiations and develop measurement/surveillance techniques for Russian Pu reactor shutdown and Pu storage.

- Continue technical expert support and conclude negotiations for Russian HEU Purchase Agreement transparency measures.
- Conduct dismantlement technical exchanges and conclude Mutual Reciprocal Inspection (MRI) agreements with Russia on Pu and HEU.
- Enable completion of CTBT.
- Proceed with MRIs of U.S. and Russian dismantled weapon fissile material storage.
- Commence warhead safety and security exchanges with Russia.
- Develop methodology for DOE-wide evaluation of lab-to-lab programs effectiveness.
- Continue policy analysis and technical expert support for interagency policy makers and U.S. CTBT negotiators.
- Conclude Project Sapphire assistance package for Kazakstan.
- Assist with transport and disposition of other fissile material caches as required.
- Continue developing transparency measures for the BWC and prepare for implementation of agreed measures at susceptible DOE sites.

FY 1997 Planned Accomplishments:

- Complete FMCT negotiations, and commence FMCT implementation at DOE sites.
- Continue technical expert support for monitoring Russian plutonium production reactor and storage regime and activities related to the shutdown or conversion of the fuel in these reactors..
- Continue technical expert and policy analytical support for voluntary IAEA inspection of excess U.S. fissile material at DOE facilities. Conduct technical exchanges on classification issues.
- Continue technical support for Russian HEU purchase transparency agreement negotiations.
- Conclude Stockpile Data Exchange Agreement and begin negotiation of spot check measures to confirm the declarations.

- Continue warhead safety and security exchange projects.
- Validate methodology (metrics/measures) for evaluation of lab-to-lab activities with the Former Soviet Union and China.
- Conduct CTBT implementation and regional calibration exercises.

Explanation of Funding Changes FY 1996 to FY 1997:

The decrease of $1,911,000 reflects a shift in emphasis away from "traditional" cold war arms control activities towards regional nonproliferation and arms control initiatives now underway and described in the "Nuclear Nonproliferation Policy" program activity; and the result of the realignment of funds for program direction and related expenses to a new decision unit.

NUCLEAR NONPROLIFERATION POLICY

I. Mission Supporting Goals and Objectives

Nuclear Nonproliferation Policy funds technical support to Middle Eastern, South Asian, North Asian, and Latin American arms control and nonproliferation agreements, policies and negotiations. Funds support the State Department through increased contact with proliferant states to address the motives which drive proliferation, and the use of DOE resources to assist and conduct training in confidence building measures, arms control treaty verification, treaty implementation, cooperative monitoring, and the use of technology to facilitate proliferation prevention and roll back. In addition, funds support regional activities in support of global arms control treaties including the NPT, CTBT, and FMCT, and the study of nuclear fuel cycle and environmental issues which destabilize regions and threaten regional security.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Nuclear Nonproliferation Policy	$ 5,463	$ 5,282	$ 8,587	$ +3,305	+62.6
Total, Nuclear Nonproliferation Policy	$ 5,463	$ 5,282	$ 8,587	$ +3,305	+62.6

III. Performance Summary:

FY 1995 Accomplishments:

- Supported successful negotiations of US/European Atomic Energy Community (EURATOM) Agreement for Cooperation.
- Participated in negotiation and planning for new agreements for cooperation with Former Soviet Union (FSU) States, Switzerland, and China.
- Accomplished DOE statutory responsibilities for implementing Agreements for Cooperation including recommendations concerning requests for approval of subsequent arrangements.

- Planned Middle East verification technology demonstration and supported arms control talks for that region. Provided technology for the Korean peninsula denuclearization process. Supported East Asian security and arms control process. Supported South Asian confidence building.

- Hosted first visits of Pakistani and Indian delegations to discuss nonproliferation and arms control.

- Supported Cooperative Monitoring Center at Sandia National Laboratories which provides arms control and verification training to Middle Eastern and South Asian states.

FY 1996 Accomplishments (to date and planned):

- Develop, participate, and implement the President's directions to discourage the civil uses of plutonium and reduce plutonium and highly enriched uranium (HEU) stockpiles worldwide.

- Manage long-term alternatives for power and research reactor spent fuel disposition and support regional multinational fuel cycle initiatives.

- Implement Nuclear Nonproliferation Treaty and review activities. Support the Department of State in negotiations of new agreements for cooperation with FSU States, Switzerland, and China.

- Continue to accomplish DOE statutory responsibilities for implementing Agreements for Cooperation including recommendations concerning requests for approval of subsequent arrangements.

- Expand base program in cooperative verification and arms control training and agreements, and increase focus on energy security issues. Support verification technology demonstration in Middle East and South Asia and arms control activities in Korea and Northeast Asia.

- Increase focus on proliferation implications of nuclear fuel cycle decisions.

- Support development of regional centers for crisis prevention, arms control training, and treaty implementation.

- Support fissile material cut off treaty negotiations through site visits and bilateral discussions particularly with Israel, India and Pakistan.

FY 1997 Planned Accomplishments:

- Continue to accomplish DOE statutory responsibilities for implementing Agreements for Cooperation including recommendations concerning requests for approval of subsequent requirements.
- Send Department of Energy laboratory teams to implement nonproliferation verification experiments in the Middle East and South Asia to support regional arms control activities.
- Establish cooperative links with foreign laboratories to support regional arms control agreements in Israel, Egypt, India, Pakistan, and China.
- Conduct joint international experiments in support of fissile materials cut-off regime with India, Pakistan, and Israel.
- Assist, as appropriate, in implementation of agreed framework with North Korea and other regional arms control agreements in Asia. This is in addition to specific DOE responsibilities for implementing activities to arrest corrosion and safely can and store spent fuel as outlined in the International Security program activity.

Explanation of Funding Changes FY 1996 to FY 1997:

The net increase of $3,305,000 is due to the following: (1) an increase in analysis and support to U.S. nuclear arms control policies in the Middle East, Asia, and South Asia; (2) an increase in analysis and support to nuclear energy security issues in Asia, South Asia, and Europe; (3) an increase in support to U.S. policies that address excess civilian plutonium; (4) an increase in support for analysis, negotiation, verification, monitoring, and implementation of regional arms control agreements and nuclear weapons free zones; and (5) the realignment of funds for program direction and related expenses to a new decision unit.

REDUCED ENRICHMENT RESEARCH AND TEST REACTOR (RERTR)

I. Mission Supporting Goals and Objectives

Reduced Enrichment Research & Test Reactor (RERTR) Program supports development of low enriched uranium (LEU) fuels to further LEU conversion of research and test reactors; expedited return of U.S. origin research reactor spent fuel from overseas; and development of targets and chemical processes for producing molybdenum-99 using LEU. New funding will support development of advanced high density LEU fuels for Russian and Chinese reactors and remaining unconverted reactors in Western Europe and the U.S.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Reduced Enrichment Research & Test Reactor	$ 1,784	$ 3,447	$ 6,422	$ + 2,975	+86.3
Total, Reduced Enrichment Research & Test Reactor	$ 1,784	$ 3,447	$ 6,422	$ + 2,975	+86.3

III. Performance Summary:

FY 1995 Accomplishments:

- Led Reduced Enrichment Research and Test Reactor (RERTR) Program policy development activities with Russia, FSU or FSU-client countries, China, and South Africa.
- Began implementation of RERTR program with Russia, developing technologies needed to convert Russian-supplied research reactors to use LEU fuel.
- Completed technical feasibility study on the use of LEU fuel in the Advanced Neutron Source (ANS) reactor.
- Completed feasibility study on conversion of SAFARI I research reactor in South Africa to LEU fuel.

- Continued Low Enriched Uranium (LEU) fuel conversion assistance to Western research reactors. Continued cooperation in development of LEU targets for medical isotope production.
- Signed letter of intent with China to cooperate in Chinese RERTR program.
- Signed lab-to-lab contract with Russia to implement Russian RERTR program.
- Began preparation for development of advanced LEU fuels for use in high-flux research reactors which are currently unable to use qualified and licensed LEU fuel.
- Assisted in completion Environmental Impact Statement (EIS) to allow return of foreign research reactor spent fuel to the U.S.

FY 1996 Accomplishments (to date and planned):

- Continue cooperative activities with Russian laboratories on implementation of Russian agreements.
- Initiate return of U.S. origin spent nuclear research reactor fuel from abroad under the EIS.
- Conduct exchange visits with Chinese laboratories and start cooperative exchanges with China on RERTR.
- Begin U.S.-South African cooperation on production of molybdenum-99 using LEU.
- Initiate development of high density LEU fuels for research reactors.

FY 1997 Planned Accomplishments:

- Continue development of LEU fuels for Russia and begin studies of Russian reactor conversion.
- Continue development of LEU targets for molybdenum-99 production.
- Develop joint plan of reactor conversion with China.
- Continue development of high density LEU fuels for research reactors.

Explanation of Funding Changes FY 1996 to FY 1997:

The net increase of $2,975,000 is due to the following: (1) an increase for the full-scale initiation of advanced fuel development by the RERTR Program; (2) an increase for expanded international cooperation on reactor conversion efforts; (3) an increase that reflects the next step in the five-year fuel development program; and (4) the realignment of funds for program direction and related expenses to a new decision unit.

INTERNATIONAL SAFEGUARDS

I. Mission Supporting Goals and Objectives

International Safeguards funds efforts which strengthen the Nuclear Nonproliferation Regime. These efforts improve the effectiveness of the International Atomic Energy Agency (IAEA) safeguards and expand them to additional U.S. excess materials and sites. Technical support is provided to DOE sites for IAEA Safeguards implementation. New safeguards approaches and methods are developed for excess materials. Verification measures are developed for implementing a fissile material cut-off treaty. IAEA technical assistance programs which promote peaceful use of atomic energy are also supported as are bilateral nuclear cooperation efforts through "sister lab" arrangements. Cooperative agreements are negotiated and implemented for improved material protection, control, accountancy, and transparency with other countries, regions, and international organizations, including China, Japan, South Africa, South Korea, IAEA, European Atomic Energy Community (EURATOM), Argentine-Brazil Accounting and Control Commission (ABACC), and others. Funds also support environmental monitoring, remote monitoring, information management, and the International Nuclear Material Analysis Program (INA), for tracking and analyzing domestic and foreign nuclear materials.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
International Safeguards	$ 20,429	$ 19,679	$ 19,941	$ +262	+1.3
Total, International Safeguards	$ 20,429	$ 19,679	$ 19,941	$ +262	+1.3

III. Performance Summary:

FY 1995 Accomplishments:

- Initiated IAEA safeguards on excess highly enriched uranium (HEU) at Y-12, and excess plutonium at Hanford.
- Investigated new safeguards techniques for the IAEA to improve detection of undeclared activities (e.g., environmental monitoring).
- Provided policy analysis and technical expert support which enabled the achievement of an indefinite extension of the Nonproliferation Treaty (NPT).
- Conducted international safeguards cooperation with Japan, Argentina, Australia, Germany, and EURATOM.

- Demonstrated remote monitoring's nonproliferation application through field trials at the Russian Kurchatov Institute, Oak Ridge Y-12 plant, Vault 16, Argentina, fuel storage, and others.
- Supported IAEA inspections in Iraq and North Korea.
- Conducted international training courses on nuclear materials protection, controls, and accounting as required by the Nuclear Nonproliferation Act of 1978 (NNPA-78).
- Conducted modernization of U.S. nuclear materials tracking system (Nuclear Material Management and Safeguards System (NMMSS) into the new International Nuclear Analysis Program (INA).
- Entered safeguards agreement with Brazil and South Korea.
- Provided initial funding for DOE Material Protection, Control and Accounting (MPC&A) activities in countries of the Former Soviet Union in conjunction with funds provided by Nunn-Lugar legislation. Transferred to "MPC&A" program activity in FY 1996, where FY 1995 accomplishments supported by this funding are described.

FY 1996 Accomplishments (to date and planned):

- Initiate IAEA safeguards on excess plutonium at Rocky Flats.
- Implement IAEA safeguards on additional U.S. material and sites (e.g., Sapphire material, Portsmouth Gaseous Diffusion Plant).
- Develop new IAEA safeguards methods for excess nuclear materials in sensitive forms.
- Evaluate DOE action plan for international safeguarding of U.S. excess fissile material.
- Complete construction and initial operation of IAEA clean room laboratory in Vienna, Austria.
- Assist IAEA implementation of strengthened safeguards measures for routine use of enhanced technology (e.g., environmental sampling, remote monitoring, enhanced information management).
- Demonstrate remote monitoring at Y-12 excess nuclear material vault..
- Complete transition to new upgraded cost-effective INA program.
- Enter safeguards agreement with South Africa, China, Sweden, Finland, and Canada.

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FY 1997 Planned Accomplishments:

- Provide analytical support and coordination to enable placement of additional quantities of excess material at U.S. DOE sites under IAEA safeguards.
- Develop verification measures for Fissile Material Cut-off Treaty.
- Promote peaceful uses of atomic energy.
- Enhance effectiveness of IAEA technical assistance programs through "sister lab" arrangements with 4 countries.
- Streamline U.S. nuclear material tracking system (INA) and perform data analyses to support U.S. policy.
- Add international agreements of cooperation with China, South Africa, and Sweden, to improve material protection, control, accounting, and transparency.
- Perform 3-4 country visits under U.S. Physical Protection Bilaterals Program.
- Provide international training courses on nuclear materials protection, control and accounting as required by NNPA-78.

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Explanation of Funding Changes FY 1996 to FY 1997:

The net increase of $262,000 is due to the following: (1) a reduction in the International Nuclear Analysis (INA) program because of the successful completion of transition to the new system from the old Nuclear Materials Management and Safeguards System (NMMSS); (2) an increase in regional safeguards initiatives due to new international cooperation agreements to control nuclear material; (3) the placement of additional DOE facilities and nuclear material under IAEA safeguards; and (4) the realignment of funds for program direction and related expenses to a new decision unit.

ARMS CONTROL AND NONPROLIFERATION

EXPORT CONTROL OPERATIONS

I. Mission Supporting Goals and Objectives

Export Control Operations advance U.S. nonproliferation export control objectives by developing and implementing policies, regulations, and procedures to halt the spread of weapons of mass destruction; control the export of nuclear and nuclear-related equipment, materials, and technologies as mandated by law and in accordance with national security objectives; and provide unique technical expertise and training for the U.S. and international nonproliferation communities.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Export Control Operations	$ 15,757	$ 15,594	$ 15,302	$ -292	-1.9
Total, Export Control Operations	$ 15,757	$ 15,594	$ 15,302	$ -292	-1.9

III. Performance Summary:

FY 1995 Accomplishments:

- Reviewed and provided recommendations to the Department of Commerce on nuclear-related dual-use licenses, representing DOE on all interagency fora, e.g., the Advisory Committee on Export Policy and the Interagency Working Group on Nonproliferation and Export Controls.
- Administered for the Department, the controls on the transfer of technology and assistance under 10 CFR Part 810.
- Completed initiative within the Nuclear Suppliers Group to add technology controls for all items on the Trigger list.
- Completed the first technical review and revision of the Nuclear Suppliers Group's Nuclear-Related Dual-Use List.
- Initiated the first technical review of reactor, non-nuclear materials, and fuel fabrication technologies on the multilateral control lists since they were created in the 1970s.
- Conducted joint effort with U.S. Customs to train officials in the Baltic States and in Eastern Europe on the identification of nuclear and nuclear-related dual-use commodities and materials to assist in preventing the illicit trafficking of these items.

- Negotiated and began tasking through laboratory-to-laboratory arrangement with the Kurchatov Institute to assist host governments in establishing or enhancing effective export control systems.

- Published and disseminated throughout the DOE complex "Interim Guidelines on Export Control and Nonproliferation" to provide guidance on release of materials, equipment, and technology.

- Organized and presented nationwide series of regional workshops on "Export Control, Nonproliferation, and Property Management."

- Upgraded the Proliferation Information Network System (PINS) with enhanced security capabilities, and additional technology features, allowing more complete proliferation analysis and improving export licensing review.

- Initiated nonproliferation/export control outreach activities with Kazakstan and Ukraine.

- Organized pool of DOE laboratory technical experts to provide assistance to DOE field sites on identification and review of "high risk" property prior to sale or disposal.

FY 1996 Accomplishments (to date and planned):

- Review and provide recommendations to the Department of Commerce on nuclear-related dual-use licenses, representing DOE on all interagency fora, e.g., the Advisory Committee on Export Policy and the Interagency Working Group on Nonproliferation and Export Controls.

- Gain official Nuclear Suppliers Group adoption of the computerized information sharing system.

- Complete the technical review of technologies on Trigger Lists of the Nuclear Suppliers Group and the NPT Exporters Committee (Zangger) relating to reactors, non-nuclear materials, and fuel fabrication.

- Continue refinement and expansion of PINS to include more users within the Department of Energy community and possibly other agencies.

- Continue to assist in identifying illegal transfers of dual-use commodities through publication (in English and Russian) of a Nuclear Suppliers Group Customs Guide on sensitive goods.

- Develop and implement a two-year work plan to assist Newly Independent States and developing countries in implementation of effective export control systems.

- Increase FSU lab-to-lab arrangements with other institutes and other countries including the National Nuclear Center in Kazakstan and the Academy of Sciences (National Scientific Center-Institute for Nuclear Research) in Ukraine, to promote the role of technical exports in export license reviews.

- Hold a Peaceful Uses of Nuclear Energy Conference with the Republic of South Africa.
- Collaborate with DOE Central Training Academy to develop an institutional course on "Export Control, Nonproliferation, and Property Management."
- Continue administering for the Department, the controls on the transfer of technology and assistance under 10 CFR Part 810.
- Place two students in the FSU Graduate Student Facilitator Program in Russia and Kazakstan to assist the respective governments in implementing effective export controls.
- Enhance PINS license review computing and analysis environment and expand PINS data products capabilities.

FY 1997 Planned Accomplishments:

- Review and provide recommendations to the Department of Commerce on nuclear-related dual-use licenses, representing DOE on all interagency fora, e.g., the Advisory Committee on Export Policy and the Interagency Working Group on Nonproliferation and Export Controls.
- Continue to serve as the principal U.S. agency for identification of commodities that could be of significance for nuclear weapons purposes, and in the negotiation of multilateral controls on these items.
- Continue to serve as the administrator of all foreign transfers of nuclear technology and technical assistance under 10 CFR Part 810.
- Continue to serve as principal U.S. agency in support of the international nuclear export control regimes, especially the Nuclear Suppliers Group and the Nonproliferation Treaty Exporters Committee.
- Continue to provide orientation workshops on nonproliferation issues and topics for the U.S. Government.
- Integrate the export control case processing system with the distributed PINS client-server environment.
- Revise as appropriate and implement a two-year work plan to assist Newly Independent States and developing countries in the implementation of effective export control systems
- Maintain and enhance lab-to-lab cooperative agreements, providing assistance to enhance effective export control systems.
- Continue to sponsor bilateral and multilateral participation in Regional Conferences related to the Peaceful Use of Nuclear Energy.
- Increase FSU lab-to-lab arrangements with other FSU countries.

- Expand the FSU Graduate Facilitator Program through additional student placements.
- Expand the effort to assist implementation of effective export control systems to additional governments in regions of concern, consistent with U.S. nonproliferation objectives.

Explanation of Funding Changes FY 1996 to FY 1997:

The decrease of $292,000 is due to realignment of funds for program direction and related expenses to a new decision unit.

ARMS CONTROL AND NONPROLIFERATION

MATERIALS PROTECTION, CONTROL, AND ACCOUNTING

I. Mission Supporting Goals and Objectives

Materials Protection, Control, & Accounting (MPC&A) activities are designed to support cooperation under both the government-to-government and lab-to-lab agreements established with countries of the Former Soviet Union (FSU) for the protection of "direct use" nuclear materials. The program focuses on key facilities and institutions that possess and/or process significant quantities of such materials that are of concern to nonproliferation interests. The program provides expertise for the planning and implementation of systems and procedures to enhance protection of such materials. Included are development of computerized material control and accounting software systems and transfer of technology for radiation measurement methods, entry control, and elements of physical protection. These activities support the integration of nuclear materials security elements into systems that provide effective security and are maintainable by countries of the FSU. Efforts also promote the diffusion of nuclear materials security technologies, concepts, and expertise to different types of operating facilities where systems will be implemented.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Materials Protection, Control, & Accounting	$ 0	$ 45,815	$ 69,637	$ +23,822	+52.0
Total, Materials Protection, Control, & Accounting	$ 0	$ 45,815	$ 69,637	$ +23,822	+52.0

III. Performance Summary:

FY 1995 Accomplishments:

- Funding for these accomplishments is reflected in the "International Safeguards" program activity since the "Materials Protection, Control, and Accounting" program activity was not established until FY 1996.
- Upgrades at Kurchatov Institute: Completed site survey; developed and implemented plans for improved physical protection, including fencing, lighting, closed circuit television, sensors, access control systems, nuclear material and metal detectors, reliable power, and an improved MPC&A system.

- MPC&A demonstrations at Arzamas-16: Installed and demonstrated a model MPC&A system to be used at Arzamas-16 and other sites.

- Upgrades at IPPE Obninsk: Implemented a MPC&A system for the BFS facilities, including a comprehensive physical security system and extensive MPC&A systems and procedures.

- Upgrades at Elektorstal LEU line: Completed a site survey followed by MPC&A training; provided computers and software, seals and labels for MPC&A; furnished vulnerability assessment software, hand held detectors, and access control systems.

- Deployment of portal monitors and other MPC&A technologies at multiple facilities: Systems supplied to Obninsk include a radiation portal monitor and a digital image processing system for item control. Mayak received a demonstration of a number of portal monitors and MPC&A technologies. Elektrostal received hand held detectors. Kiev Institute of Nuclear Research received nuclear materials detectors and metal detectors.

- Completion of US/Russian Joint Action Plan: Prioritization of sites for surveys and MPC&A enhancements.

- Upgrades at Kiev Institute in Ukraine: Site survey followed by a plan for MPC&A upgrades and equipment specifications. Hand held detectors, seals, radiation detectors, a security radio system, an x-ray baggage screening system are to be delivered.

- Upgrades at the Ulba Metallurgical Plant in Kazakstan: Designed an enhanced physical protection system; provided NDA training; furnished seals and training in their use; supported development of an improved MPC&A system.

- DOE/GAN agreement signed: Implementation plan developed to support development of Russian regulatory base for MPC&A.

FY 1996 Accomplishments (to date and planned):

- Upgrades at Kurchatov Institute, Cheyabinsk-70, Tomsk-7, Arzamas-16, Obninsk IPPE, Mayak, Penza, Podolsk, Dimitrovgrad, Elektrostal HEU line, and other facilities in Russia. Plans, implementation, and training in the total spectrum of MPC&A systems and procedures.

- Upgrades at Aktau, Semey, and Almaty in Kazakstan; Kharkiv, Kiev, and Sevastopol in Ukraine; Sosny in Belarus, and institutes in Latvia, Lithuania, Uzbekistan, and Georgia.

- Provide equipment and training for GAN in support of development of the MPC&A regulatory base in Russia.

- Begin upgrades at facilities identified through GAN cooperation.

- Begin upgrades at new Minatom facilities identified at Gore-Chernomyrdin-6.

FY 1997 Planned Accomplishments:

- Continue to expand improvements at locations divided into five categories:
- Russia's Minatom civil nuclear sector (on the order of tens of tons);
- Minatom's nuclear weapon complex (on the order of hundreds of tons);
- Russian nuclear materials for use in civil applications but not controlled by Minatom (on the order of tons of materials);
- Nuclear materials in Russian naval propulsion applications (tens of tons of highly enriched uranium); and
- Nuclear materials outside of Russia (the goal is to have all work completed by the end of FY 1997 of significant quantities of weapon-usable materials in a fairly limited number of civilian facilities).
- Continue cooperation with Gosatomnadzor (GAN), the Russian nuclear regulatory authority in six areas:
- Instituting national level MPC&A standards.
- Establishing a national tracking system for nuclear materials.
- Providing equipment and training for inspectors.
- Upgrading MPC&A at independent facilities.
- Designing an MPC&A system.
- Exchanging of experiences and documents.
- Maintain the viability of the multiple path effort, continue development and deployment of technologies, continue expanding cooperation in all key sectors.

Explanation of Funding Changes FY 1996 to FY 1997:

The net increase of $23,822,000 is due to the following: (1) an increase that reflects the rapid pace of expansion of cooperation with Russian facilities in the upgrading of Materials Protection, Control and Accounting; and (2) the realignment of funds for program direction and related expenses to a new decision unit. This net increase is important to ensure early safeguarding of weapons usable material in support of U.S. nonproliferation goals. New facilities will be added to the program, including six new Minatom facilities and six new facilities identified by GAN.

TREATIES AND AGREEMENTS

I. Mission Supporting Goals and Objectives

The Treaties and Agreements program supports implementation of bilateral or multilateral, Presidentially-directed or Congressionally-mandated arms control and nonproliferation initiatives, agreements and treaties. In addition, it provides for unexpected, unbudgeted responses to arms control and nonproliferation requirements of an immediate nature based on urgent U.S. national security needs, as well as preparations to meet new transparency or verification requirements arising out of ongoing negotiations that are consistent with U.S. national security and without compromising proliferation sensitive information.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Treaties and Agreements	$ 12,643	$ 2,461	$ 4,028	$ +1,567	+ 63.7
Total, Treaties and Agreements	$ 12,643	$ 2,461	$ 4,028	$ +1,567	+ 63.7

III. Performance Summary:

FY 1995 Accomplishments:

- Accomplished the Project Sapphire mission of packaging, shipping, and purchasing highly enriched uranium (HEU) from the government of Kazakstan.
- Achieved a U.S./Russian plutonium shutdown agreement.
- Provided policy analysis and technical expert support which enabled the achievement of an indefinite extension of the Nuclear Nonproliferation Treaty (NPT).
- Provided U.S. voluntary offer for IAEA inspection of excess fissile material at the Oak Ridge Y-12 Plant.
- Conducted U.S./Russian reciprocal inspections of plutonium removed from nuclear weapons.

- Provided funds, technical support and personnel to "jump-start" laboratory-to-laboratory and government-to-government agreements and activities involving MPC&A support to Russian and The Newly Independent States (NIS), in advance of other, delayed funding sources.

- Provided technical support and personnel for United Nations Special Commission on Iraq (UNSCOM) to ensure no reinitiation of programs for weapons of mass destruction.

- Contributed to Gore/Chernomyrdin and O'Leary/Mikhailov initiatives.

- Funding includes reprogramming to support initiation of DOE activities to freeze North Korea's nuclear weapons program. Transferred to "International Security" program activity in FY 1996, where FY 1995 accomplishments supported by the reprogramming are reflected.

FY 1996 Accomplishments (to date and planned):

- Support the successful negotiation of a Comprehensive Test Ban Treaty (CTBT).

- Continue support for Gore/Chernomyrdin and O'Leary/Mikhailov initiatives.

- Coordinate purchase and secure HEU from governments of the former Soviet Union (FSU) and other nations, where appropriate.

- Coordinate establishment of policy of purchasing and securing plutonium from governments of the former Soviet Union (FSU) and other nations, where appropriate.

- Support extension of IAEA inspections of excess fissile to other DOE facilities.

- Continue and expand U.S./Russian mutual reciprocal inspections of excess fissile material.

- Coordinate and support the implementation of DOE responsibilities under Chemical Weapons Convention (CWC) and Biological Weapons Convention (BWC).

- Continue to provide technical support and personnel for United Nations Special Commission (UNSCOM) to ensure no reinitiation of programs for weapons of mass destruction.

- Provide contingency funding for unexpected requirements concerning treaty or agreement negotiations, implementation, and related activities responding to urgent U.S. national security requirements.

FY 1997 Planned Accomplishments:

- Support implementation of DOE responsibilities under a successfully-negotiated CTBT.
- Continue to coordinate purchase and secure HEU from governments of the former Soviet Union and other nations, where appropriate.
- Continue reciprocal inspections of excess fissile material in the U.S. and Russia.
- Continue technical support and personnel for UNSCOM efforts.
- Provide funding for treaty or agreement negotiations, implementation, and related activities responding to urgent U.S. national security requirements.

Explanation of Funding Changes FY 1996 to FY 1997:

The decrease in funding between FY 1995 and FY 1996 was due to Congressional elimination of DOE responsibilities under the Threshold Test Ban Treaty, which has been overtaken by events leading to negotiations underway to conclude a Comprehensive Test Ban Treaty. Events which unfolded in FY 1996 such as the dramatic increase in activities to secure weapons-usable nuclear materials in the Former Soviet Union, the purchase of hundreds of tons of HEU from Kazakstan and plans for downblending to LEU and accomplishing IAEA inspections, and activities to shut down the nuclear weapons programs of emerging rogue states or terrorists groups underscore the need for increased funding for FY 1997 to provide for immediate support to solve urgent national security problems. The net increase of $1,567,000 also reflects the realignment of funds for program direction and related expenses to a new decision unit.

INTERNATIONAL SECURITY

I. Mission Supporting Goals and Objectives:

The International Security program supports the implementation of security commitments made by the Administration regarding the Newly Independent States (NIS) of the Former Soviet Union (FSU) and the Democratic Peoples Republic of Korea (DPRK). Spent fuel activities in the DPRK include arresting the corrosion of the spent fuel from the 5MW research reactor in Nyongbyon, North Korea; and safely canning and storing spent fuel prior to its ultimate disposition in accordance with the "agreed" framework signed by the governments of the U.S. and DPRK. Other specific activities include the International Proliferation Prevention (IPP) Program in the NIS and FSU which is transferred from Defense Programs, Weapons Activities in FY 1996. The IPP Program is designed to reduce the global nuclear danger through focused proliferation prevention partnerships with science and engineering institutes in Russia, Ukraine, Kazakstan, and Belarus. Major initiatives include preventing "brain drain" by engaging scientists, engineers, and technicians in nonweapons-related projects; motivating participation in proliferation prevention activities; facilitating continued access to NIS facilities through technical engagement with personnel; and establishing self-sustaining commercial linkage that will support future independent commercial projects.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
International Security	$ 0	$ 13,211	$ 19,568	$ +6,357	+48.1
Total, International Security	$ 0	$ 13,211	$ 19,568	$ +6,357	+48.1

III. Performance Summary for Spent Fuel Activities:

FY 1995 Accomplishments:

- Reprogrammed funding for these accomplishments is reflected in the "Treaties and Agreements" program activity since the "International Security" program activity was not established until FY 1996.
- Reached agreement with DPRK regarding technical and logistical arrangements for safe storage of spent fuel from the 5MW research reactor at Nyongbyon, North Korea.
- Quickly deployed a chiller to arrest accelerated corrosion of the spent fuel.

- Began clarifying, de-ionizing, and treating the water in the fuel storage basin where the fuel has been residing.
- Began installing a complete system of equipment to place the spent fuel in sealed storage canisters.
- Began to place all the spent fuel from the 5MW research reactor, including damaged fuel in dry storage, into canisters filled with inert gas and under International Atomic Energy Agency (IAEA) seals.
- Reached agreement with DPRK regarding long-term operation and maintenance of the water treatment system.

FY 1996 Accomplishments (to date and planned):

- Complete work to arrest corrosion and treat water in the fuel storage basin.
- Complete placement of spent and damaged fuel into canisters with inert gas and under IAEA seals.
- Provide boiler to supply heat to the spent fuel building.
- Cover increased costs for water treatment and canning caused by delay in implementation, or by unforeseen technical or political problems.
- Cover any cost increases related to larger-than-anticipated amounts of radioactive cesium in the basin water.
- Fully characterize storage conditions and determine viability for long-term storage of North Korea spent nuclear fuel.
- Monitor spent fuel basin and fuel storage canisters during first year after canning.
- Revisit North Korea as required to assure that the water treatment system is operating correctly or address any technical problems or required maintenance of the water treatment or fuel storage systems.

FY 1997 Planned Accomplishments:

- Initiate a detailed study for disposition options for North Korean spent nuclear fuel.
- Revisit North Korea as required to assure that water treatment system is operating correctly or address any technical problems or required maintenance of the water treatment or fuel storage systems.
- Successfully respond to unforeseen technical or political problems that may disrupt successful completion of the spent fuel canning project or that may indicate a reinitiation of the DPRK's clandestine weapons program.

III. Performance Summary for IPP Program:

FY 1995 Accomplishments:

- Transferred from Defense Programs, Weapons Activities In FY 1996.

FY 1996 Accomplishments:

- Initiate 200 joint DOE laboratory-to-NIS institute research projects that support over 2,000 workyears of nonweapons work by NIS weapons technologists.
- Create 35 cost-share partnerships involving U.S. industry, DOE national laboratories, and NIS institutes which identify and commercialize NIS technology for the mutual economic benefit of the U.S. and the participating NIS country.
- Develop between 20-30 commercial products or processes which, if both technically and commercially feasible, will be patented, licensed, and transitioned to commercial manufacture in the U.S. and/or NIS.
- Provide management and business practices assistance, training, and exchanges with U.S. companies, universities, and DOE national laboratories for NIS weapons scientists, engineers, and technicians.
- Develop communication links with several key NIS weapons institutes to facilitate effective program management.
- Encourage investment by USIC member companies in commercial product development ventures with NIS institutes.

FY 1997 Accomplishments:

- Continue to engage NIS scientists, engineers and technicians in nonweapons-related projects.
- Increase proportion of cost-share partnerships for the mutual economic benefit of the U.S. and the participating NIS countries.
- Develop 20-30 commercially feasible products or processes for manufacture.
- Provide management and practices assistance, training, and exchanges.
- Promote improved interagency cooperation to leverage resources against U.S. Government strategic objectives.

- Maintain communication links with key NIS weapons institutes to perpetuate effective program management.
- Further refine/develop IPP multiagency information system.

Explanation of Funding Changes FY 1996 to FY 1997:

The net increase of $6,357,000 is due to the following: (1) an increase for DPRK follow-on activities including fuel characterization and system maintenance related to the canning of the North Korean spent nuclear fuel; (2)an increase for IPP activities that support additional DOE laboratory-to-NIS institute projects and new cost-share partnerships; and (3) the realignment of funds for program direction and related expenses to a new decision unit..

FACILITIES OPERATIONS

I. Mission Supporting Goals and Objectives:

Funding supports the establishment and maintenance of international safeguards and export controls; provides for U.S.-Russian lab-to-lab nuclear material protection, control, and accounting; and supports development of high density low enriched fuel.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 673	$ 23,973	$ 24,075	$ + 102	+ 0.4
Total, Facilities Operations	$ 673	$ 23,973	$ 24,075	$ + 102	+ 0.4

III. Performance Summary:

FY 1995 Accomplishments:

- Purchased equipment in support of International Safeguards activities including remote monitoring field trials, International Atomic Energy Agency (IAEA) environmental monitoring of field trials, modernization of U.S. nuclear materials tracking system, and implementation of international safeguards agreements.

- In support of Export Control Operations, purchased Proliferation Information Network System (PINS) secure telecommunications components and encryption equipment at selected PINS sites; purchased and installed PINS backup disk (RAID) subsystem; and purchased and installed PINS backup server.

FY 1996 Planned Accomplishments:

- In support of Export Control Operations, purchase Proliferation Information Network Systems (PINS) secure telecommunications components and encryption equipment for remaining PINS sites; purchase and install Windows NT Servers for key PINS local area networks; and purchase and install secure controlled interface system.

- Purchase equipment in support of International Safeguards activities including the Safeguards Information Management System (SIMS), remote monitoring project, IAEA environmental monitoring, and implementation of international safeguards agreements.

- Procure equipment in support of nuclear material protection, control, and accounting efforts with the Former Soviet Union (FSU).
- Purchase equipment for advanced fuel development efforts for the Reduced Enrichment Research and Test Reactor (RERTR).

FY 1997 Planned Accomplishments:

- Procure equipment in support of nuclear material protection, control, and accounting efforts in the Former Soviet Union.
- In support of Export Control Operations, purchase and install SQL database server; purchase and install backup secure telecommunications and encryption systems for PINS Wide Area Network(WAN) at each PINS site; and purchase and install PINS main server replacement.
- Purchase equipment in support of International Safeguards activities including environmental monitoring and analysis, remote monitoring, IAEA information management support to perform nuclear profiles, and implementation of international safeguards agreements.
- Purchase equipment for advanced fuel development efforts for the Reduced Enrichment Research and Test Reactor (RERTR).

Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $102,000 reflects an increase in support of IAEA inspections of excess fissile material, to promote regional nonproliferation measures, and to increase the effectiveness and efficiency of IAEA safeguards.

INTELLIGENCE

PROGRAM MISSION

The Intelligence mission is to provide the Department, other U.S. Government policymakers, and the Intelligence Community with timely, accurate, high impact foreign intelligence analyses; to ensure that the Department's technical, analytical and research expertise is made available to the Intelligence Community in accordance with Executive Order 12333; to deter and neutralize foreign intelligence service actions (HUMINT) in the U.S. from acquiring sensitive information (classified and unclassified) involving DOE programs, facilities, technology, and personnel; to provide quick-turnaround, specialized technology applications and operational support to the intelligence, special operations, and law enforcement communities; and to provide threat assessment support to the Department's Headquarters and field operations.

The GOAL of the Intelligence Program is to support the National Security of the United States and have a direct impact on the policymaking process by providing actionable intelligence and/or technical support to intelligence operations that either reaffirms or amends existing policy, or initiates new policy actions. The Department's intelligence program serves four core policy areas: nuclear proliferation and weapons analysis, science and technology (S&T), energy security, and nuclear energy, safety and waste.

The OBJECTIVES related to this goal are to provide technical and analytical intelligence support to U.S. efforts to:

1. Improve nuclear materials protection, control, and accountability in the former Soviet Union;

2. Assist in the safe and secure dismantlement of former Soviet nuclear weapons;

3. Conclude Comprehensive Test Ban and Fissile Materials Cut-off treaties;

4. Verify foreign compliance with international treaties in the nuclear arena;

5. Limit and redirect North Korea's nuclear weapons program;

PROGRAM MISSION - INTELLIGENCE (Cont'd)

6. Address the challenge of global nuclear proliferation through the innovative and broad application of DOE assets;
7. Help identify low probability/high impact scenarios in our core areas;
8. Encourage and facilitate the application of DOE laboratory expertise to Intelligence Community technology development requirements;
9. Provide specialized technical support to operations in the intelligence, law enforcement, and special operations communities;
10. Assess threats to DOE personnel, operations and facilities from foreign and domestic adversaries; and
11. Assess the credibility of nuclear threats received worldwide and support efforts for the prevention of illicit nuclear materials trafficking.

PERFORMANCE OUTPUTS:

1. Provide 5,700 intelligence briefings for program and policy officials.
2. Publish 1,200 current intelligence products and studies.
3. Provide nuclear weapons-related training for 260 intelligence community personnel in support of U.S. Government nonproliferation initiatives.
4. Conduct 30 threat assessments.
5. Provide 60 counterintelligence awareness training sessions in support of counterespionage initiatives.
6. Complete 10 counterintelligence inquiries.
7. Conduct 80 counterintelligence travel briefings/debriefings.

PROGRAM MISSION - INTELLIGENCE (Cont'd)

8. Complete and transition 5-10 Special Technologies projects.

9. Adjudicate 500 cases for Sensitive Compartmented Information (SCI) access.

10. Process 320 requests for SCI clearances.

SIGNIFICANT FY 1995 ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- **Russian Nuclear Weapons Dismantlement** - Conducted debriefings, follow-on analysis, finished products and briefings of information relating to Russian nuclear weapon stockpile dismantlement.
- **North Korean Spent Fuel Handling and Safety** - Produced a paper that analyzed the current state and future prospects for the spent nuclear fuel removed from the North Korean reactor at Yongbyon.
- **FSU Radioactive Waste** - Produced the fifth volume in the series of reference papers on the disposition of radioactive wastes in the former Soviet Union (FSU).
- **China's R&D Program** - Produced a foundational study on Chinese R&D programs and priorities.
- **Japan's Energy Demand & Russia's Resources** - Completed a review of Japan's growing demand for secure energy supplies and the untapped energy resources of Russia's Far East.
- **CI Risk Assessments** - Conducted counterintelligence risk assessments to include the Department's vulnerability to economic espionage.
- **Irradiated Imports Assessment** - Assisted the U.S. Customs Service, in response to their request, with the evaluation of irradiated steel products received through the Port of Houston, Texas. They also used this opportunity to evaluate several radiation detectors for use by U.S. Customs Service inspectors.
- **Portable Gamma Detector** - Developed a prototype pager-sized gamma radiation detector, in direct response to Intelligence Community demands for a small, affordable detector. Prototypes being requested by numerous agencies across the U.S. government for initial field testing and examination.

PROGRAM MISSION - INTELLIGENCE (Cont'd)

- **Programmatic Threat Assessment Program** - Provided assessments of threats to DOE facilities and interests and collaborated with the FBI's National Center for the Analysis of Violent Crime for joint information and data sharing.
- **Technical Threat Awareness Training** - Provided training to Counterterrorism Community on national security activities involving weapons of mass destruction.
- **Communicated Threat Assessment Program** - Provided rapid credibility assessment of any threats made involving nuclear weapons, devices or materials, and supported rapid credibility assessment of potential nuclear weapons or materials smuggling activities.
- **Threat Awareness Seminars** - Conducted Treat Awareness Seminars for DOE, industry, law enforcement, and Intelligence Community.

INTELLIGENCE
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Intelligence Activities	30,829	40,936	-10,879	30,057	28,285
Facilities Operations	900	1,400	-500	900	900
Subtotal	31,729	42,336	-11,379	30,957	29,185
Adjustment	-380 1/	0	0	0	0
TOTAL, Intelligence	31,349 2/	42,336	-11,379	30,957 2/	29,185

1/ Use of prior year balances.

2/ Program Direction Funding was transferred to the Program Direction Decision Unit; see the comparability matrices for FY 1995 and FY 1996 included in the Nonproliferation and National Security Executive Summary.

INTELLIGENCE

I. Mission Supporting Goals and Objectives

Provide analysis and reporting on: the status and direction of emerging nuclear weapons programs of proliferant nations; countries engaged in the supply of nuclear technology, equipment, and material to proliferant programs; the production and disposition of fissile material worldwide, with special emphasis on the implications of the breakup of the former Soviet Union and its impact on the control and accountability of special nuclear material in its possession; the foreign economic threat to U.S. energy resources and U.S. energy security; the impact of changes in global energy markets on U.S. industrial competitiveness, while emphasizing opportunities and challenges to U.S. exports; the identification of foreign nuclear facilities posing risk to health and the environment and implications of a massive release of radiation; foreign technology plans, priorities, and commercial applications of leading edge technologies deemed critical by the Department and the White House Office of S&T Policy; and foreign dual-use technologies in Russia and China. Operate a department-wide CI program which focuses on detecting and defeating intelligence threats from traditional and non-traditional adversaries directed against DOE. Assess threats to the Department's Headquarters and field operations. Assist intelligence, law enforcement and special operations communities in effectively tapping into DOE lab technology base, including by developing rapid turnaround specialized technology applications.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Intelligence Activities	$ 30,829	$ 30,057	$ 28,285	$ -1772	-6%
Total, Intelligence	$ 30,829	$ 30,057	$ 28,285	$ -1772	-6%

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III. Performance Summary:

FY 1995 Accomplishments:

- **Nuclear-Related National Intelligence Products** - Participated in Nuclear Related National Intelligence Estimates.
- **Nuclear Facilities Database** - Completed the Energy Intelligence Information System (EIIS), a geographically based computer database system that contains detailed information on over 800 commercial nuclear facilities around the world.
- **Pakistan's Nuclear Program** - Produced a paper for DOE senior policymakers for use in negotiations.
- **Nuclear Reactor Safety** - Produced a compendium volume of the materials from open and classified sources aimed at identifying the most dangerous nuclear reactors worldwide.
- **Forecasting Foreign Technologies** - Sponsored a conference on foreign technology forecasting to support DOE policymakers and other U.S.Government officials.
- **Advanced Weapons R&D** - At the request of DOE policymakers and the Intelligence Community, assessed foreign weapons R&D capabilities.
- **High-Performance Computing** - Prepared an assessment of foreign high performance computing applications.
- **Energy Security the Next Century** - Sponsored a conference on Energy and National Security in the 21st Century exploring the new energy security dynamic confronting the U.S. over the next 10 to 15 years. Results are being used in Departmental strategic planning.
- **Russia's Oil Sector** - Examined Russia's oil production capability and prospects for technical and legal reform in the petroleum sector.
- **Radiation Detection Camera** - Completed proof-of-concept for an advanced radiation detection camera (radcom), which provides crucial real-time identifying information on potential radiation-emitting objects. The project transitioned to a multi-agency working group for further development.
- **Radiation Dispersal Verification** - Conducted a project to verify computer-simulated models of the aerosol dispersal of radiation-contaminated particulates. The results are key to planning and responding to nuclear emergencies.
- **Stand-off Explosives Detection** - Provided seed funding for expanded feasibility studies looking at the possibilities for stand-off explosive detection using millimeterwave holographic techniques.
- **Germanium Detector Cooling System** - Completed a prototype ultra-small cryogen cooling system for high-purity germanium detectors, eliminating the need for liquid nitrogen cooling and increasing the overall field portability of the instrument. This project has transitioned to DOE's Nuclear Emergency Response Team (NEST) for further development.

- **US-Canada Cooperation on Radiation Detection Technology** - Based on a bilateral agreement, supported collaborative technology development efforts to detect and deter illicit cross-border transit of nuclear materials and components.

FY 1996 and FY 1997 Accomplishments (to date and planned):

The FY 1996 and FY 1997 planned accomplishments will address the following issues:

- **Nuclear material control and accountability** - Analyses supporting U.S. Government policies in foreign material control and accountability.
- **Foreign nuclear weapons dismantlement** - Technical evaluations of foreign nuclear dismantlement programs.
- **Foreign nuclear material smuggling/surety of nuclear weapons** - Assessments of the flow and composition of nuclear smuggling focusing on the quality of smuggled material, the source of the material and the intended use of the smuggled material.
- **Nuclear nonproliferation training** - Provide training sessions for DOE and Intelligence Community analysts.
- **China's S&T plans, programs and priorities** - Multiyear look at China's potential as a technology developer/exporter and economic competitor to the U.S.
- **Expand the reactor risk program** - Assess unsafe foreign reactors near US facilities.
- **Expand the Energy Intelligence Information System (EIIS)** - Include additional information about radioactive waste disposal practices around the world. EIIS is currently limited to the Intelligence Community; however, this version will be of use to U.S. government entities abroad and will provide valuable information on facilities in the event of an accident or other nuclear related events.
- **Energy disruptions and emergencies** - Respond to customer requested technical assessments of foreign energy disruptions.
- **Radiation detectors for US Customs** - Conclude a project with US Customs to test and evaluate current and emerging technologies in order to identify the most appropriate detectors for use by Customs inspectors.
- **Special Projects Facility** - Establish a special projects facility at Idaho National Engineering Laboratory (INEL) to support projects related to biotechnology, materials science and engineering, chemical sciences research, digital signals processing and electronic systems, and to provide special training support.

Nuclear Terms Handbook - Published Nuclear Terms Handbook to strengthen the capabilities of National Security Community through improved understanding of the terminology associated with nuclear weapons and devices.

INTELLIGENCE

FACILITIES OPERATIONS

I. Mission Supporting Goals and Objectives:

Supports enhancement of infrastructure and core capabilities at Special Technologies Program (STP) laboratories to meet programmatic needs.

Supports enhancement of the Communicated Threat Assessment Program equipment modification.

II. Funding Schedule: N/A

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 900	$ 900	$ 900	$ 0	$ 0
Total, Facilities Operations	$ 900	$ 900	$ 900	$ 0	$ 0

III. Performance Summary:

FY 1995 Accomplishments:

- Developed a microwave material investigation radar system that can be used as a test platform to evaluate the usefulness of this technology in broader applications, such as law enforcement, nonproliferation, NEST access, and inspection and evaluation of civil structures.

- Developed fly-away health physics kits for Technical Analysis Group (TAG) deployments to perform initial analysis of suspect nuclear materials.

- Enhanced capabilities of equipment necessary to support the Communicated Threat Assessment Program.
- Obtained a solids modelling system (computer-aided design) and a laser interferometer to support specific project activities and enhance overall laboratory capabilities.

FY 1996 Accomplishments (to date and planned):

- Obtain deferential scanning calorimeter, millimeter wave reflectometer, and scaled test chamber to support specific project activities.
- Obtain other equipment as needed to support project activities and enhance overall laboratory capabilities.
- Obtain equipment as necessary to support Communicated Threat Assessment Program enhancement.

FY 1997 Planned Accomplishments:

- Obtain equipment as needed to support specific project activities and enhance overall laboratory capabilities.
- Obtain equipment as necessary to support Communicated Threat Assessment Program enhancement.

Explanation of Funding Changes FY 1996 to FY 1997: N/A

NUCLEAR SAFEGUARDS AND SECURITY

PROGRAM MISSION

The Nuclear Safeguards and Security Program provides effective policy, programmatic direction and training for the protection of the Department of Energy's (DOE) nuclear weapons, nuclear materials, classified information, and facilities. The program provides technology development and technical support to domestic safeguards and security activities as well as implementation of effective classified information and information control policies.

The GOAL of the Nuclear Safeguards and Security Program is to:

Support the National Security of the United States by assuring the effective, cost-efficient protection of the DOE's nuclear weapons, nuclear materials, and facilities against theft, sabotage, espionage, and terrorist activity.

The OBJECTIVES related to this goal are:

1. Strengthen support to field elements to facilitate implementation of cost-saving safeguards and security measures.

2. Develop Department-wide strategic and long-range planning for domestic nuclear safeguards and security.

3. Initiate modernization effort of safeguards and security management information systems.

4. Provide a domestic technology and systems development base program to ensure technical capabilities and procedures are available to sustain the protection of sensitive DOE facilities, special nuclear materials, and classified matter.

5. Ensure availability of state-of-the-art technical capabilities for accountability and control of nuclear material recovered from disassembled nuclear weapons returned from the stockpile, and storage of special nuclear materials.

6. Strengthen the role of the Safeguards and Security Central Training Academy.

PROGRAM MISSION - NUCLEAR SAFEGUARDS AND SECURITY (Cont'd)

7. Develop programs to support the standardization and accreditation of physical security systems.

PERFORMANCE MEASURES:

1. Central Training Academy will conduct 124 courses with approximately 180 iterations.

2. The Technology and Systems Development activities will address 47% of the backlog of documented and validated field user needs by modifying current technologies for safeguards and security applications or developing new technologies to specifically address safeguards and security deficiencies

3. Comply with Executive order on Classified National Security Information by issuing new procedures, training those individuals responsible for implementing these procedures, and initiating the declassification of 15 percent of DOE's National Security Information records which are permanently historical and over 25 years old by October, 1996, while continuing to protect that information which warrants classification.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Comprehensive continuous review and analysis of program requirements coupled with advances in safeguards and security technologies has resulted in millions of dollars in savings and cost avoidance for the Department.

- The Safeguards and Security program has been and will be the key deterrent in preventing major incidents (i.e., theft, sabotage, terrorist activity, etc.) across the complex at 16 domestic weapons sites.

- The Declassification program has played a key role in implementing the Department's Openness Initiative by maximizing public access to Departmental information while protecting our national security posture, thus rebuilding the public's trust in the Department of Energy.

Nuclear Safeguards and Security
Program Funding Profile
(Dollars in Thousands)

Subprogram	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Safeguards and Security					
Operational Support					
Operating Expenses	$25,607 a/	$ 37,363	(14,832)	$22,531	$21,871
Technology and Systems Development					
Operating Expenses	20,155	20,905	0	20,905	20,633
Classification/Declassification					
Operating Expenses	3,911 b/	9,787	(9,739)	48 e/	2,254
Program Direction		12,345	(12,345)	0	0
Facilities Operations	3,088	2,995	(307)	2,688	2,450
Subtotal, Nuclear Safeguards and Security	52,761 c/	83,395	(37,223)	46,172	47,208
Adjustment	(175)d/	0	0	0	0
TOTAL, Nuclear Safeguards and Security	$52,586	$ 83,395	$ (37,223)	$46,172	$47,208

a/ Reflects $600,000 internal reprogramming increase in support of the NMMSS program.
b/ Reflects $3,000,000 reprogramming increase for the Declassification Productivity Initiative.
c/ Reflects reduction of $35,000 for travel rescission.
d/ Use of prior year balances for internal Reprogramming 95-R-6 which reimbursed Security Evaluations for review commissioned by the Under Secretary.
e/ Pending reprogramming increase of $3,000,000 for the Declassification Productivity Initiative.

Public Law Authorizations
P.L. 83-703, "Atomic Energy Act of 1954"
P.L. 95-242, "Nuclear Non-Proliferation Act of 1978"
P.L. 103.62, "Government Performance and Results Act of 1993"

NUCLEAR SAFEGUARDS AND SECURITY
(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office					
Mound Plant	$973	$878	0	$878	$878
Los Alamos National Lab	7,131	7,429	0	7,429	6,965
Sandia National Labs	8,706	6,981	0	6,981	7,927
Albuquerque Operations Office	8,930	8,799	0	8,799	8,463
Chicago Operations Office					
Argonne National Lab (West)	73	75	0	75	80
Argonne National Lab (East)	374	364	0	364	103
Brookhaven National Lab	427	494	0	494	450
Chicago Operations Office		1,550	(1,550)	0	
New Brunswick Laboratory		4,295	(4,295)	0	
Idaho Operations Office	827	827	0	827	827
Nevada Operations Office	0	300	0	300	150
Oak Ridge Operations Office					
Oak Ridge Operations Office	3,974	3,176	0	3,176	2,930
Oak Ridge Institute for Science and Education	563	563	0	563	563
Richland Operations Office	4,030	2,022	0	2,022	2,122
Oakland Operations Office					
Lawrence Livermore National Lab	3,309	3,068	0	3,068	3,239
Washington Headquarters					
Office of Scientific and Technical Information	30	0	0	0	0
Washington Headquarters	13,414	42,574	(31,378)	11,196	12,511
Subtotal	52,761 a/	83,395	(37,223)	46,172 c/	47,208
Adjustment	(175) b/				
TOTAL	$52,586	$83,395	($37,223)	$46,172	$47,208

a/ Reflects reduction of $35,000 for travel rescission, $600,000 internal reprogramming increase in support of NMMSS, and a $3,000,000 reprogramming increase for the Declassification Productivity Initiative.

b/ Use of prior year balances - Reprogramming 95-R-6 to reimburse Security Evaluations for a review requested by the Under Secretary.

c/ Pending reprograming of $3,000,000 for the Declassification Productivity Initiative.

PROGRAM OBJECT CLASS SUMMARY
Nuclear Safeguards and Security

(Dollars in thousands)

Direct Obligations:	FY 1995 Non-Comp.	FY 1995 Comp.	FY 1996 Non-Comp.	FY 1996 Comp.	FY 1997 Request
11.1 Full-time Permanent	$9,014		$9,208		
11.3 Other than Full-time	380		390		
11.5 Other Personnel Compensation	148		148		
11.9 Total Personnel Compensation	9,542	0	9,746	0	0
12.1 Civilian Personnel Benefits	1,618		1,664		
21.0 Travel and Transportation of Persons	1,052		602		
23.3 Communications, Utils., and Misc.	72		74		
24.0 Printing and Reproduction	21		12		
25.1 Advisory and Assistance Services	15,532		15,808 c/		
25.2 Other Services	26,332	18,896	25,827	17,365	17,035
25.4 Operation and Maintenance of Facilities	30,063	30,063	25,020	25,020	26,883
25.7 Operation and Maintenance of Equipment	2,154	714	2,647	1,099	840
31.0 Equipment	3,395	3,088	2,995	2,688	2,450
99.0 Subtotal	89,781 a/	52,761 a/	84,395	46,172 d/	47,208
Adjustment	(175) b/	(175) b/	0	0	0
99.9 Total Obligations	$89,606	$52,586	$84,395	$46,172	$47,208

a/ Reflects reduction of $35,000 for travel rescission, $600,000 internal reprogramming increase in support of NMMSS, and a $3,000,000 reprogramming increase for the Declassification Productivity Initiative.

b/ Use of prior year balances – Reprogramming 95-R-6 which reimbursed Security Evaluations for a review commissioned by the Under Secretary.

c/ Reflects reprogramming increase of $1,000,000 for implementation of Executive Order 12958 on Classified National Security Information.

d/ Pending reprogramming increase of $3,000,000 for the Declassification Productivity Initiative.

SAFEGUARDS AND SECURITY OPERATIONAL SUPPORT
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

Safeguards and Security Operational Support provides the essential technical and analytical expertise to ensure effective and efficient security; protective force for Headquarters operations; reviews which ensure cost-saving measures in safeguards and security throughout the Department; standardized training responsive to the challenges of the changing post-cold war era; and office automation modernization geared to a more responsive and efficient operation. This support provides for the overall improvement of safeguards and security activities.

Subprogram activities in this section of the budget include the following:

- Nuclear Materials Management and Safeguards System (NMMSS), the national data base and information support system for nuclear materials under the safeguards controls and special accounting procedures of the United States Government, was replaced by the International Nuclear Analysis program. This program is now included in the Arms Control and Nonproliferation budget under International Safeguards.

- Central Training Academy (CTA) is the Center of Excellence for safeguards and security training and training development. CTA uses both traditional and distance learning technologies to provide onsite and facility training for safeguards and security personnel ensuring that DOE maintains a well-trained workforce to protect the nation's vital nuclear and energy interests against espionage, sabotage or theft. CTA assesses safeguards and security field training needs and site training program performance and develops training courses to meet those needs. Distance Learning Training includes satellite transmission of CTA training to multiple DOE sites and, through the use of modern interactive technology, allows each student to be part of the instructional process. Computer-based training, interactive audio/video training and correspondence courses are also provided.

- Information Security provides support in the areas of classified matter protection and control, technical security, information systems security, operation security,and foreign ownership, control or influence. Technical Surveillance Countermeasures (TSCM) ensures and enhances the security provided for DOE facilities in the greater Washington, D,.C. area. The Information Security Resource Center (ISRC) incorporates technical expertise and professional development of training and issues related to information security, it provides information security research and development capability, specialized training as needed, and coordinates each information security discipline into an integrated, cohesive single program.

- Security Education Briefing and Awareness provides support for Security Education Briefing and Awareness to reflect changing policies and procedures. Coordinates and participates in security education workshops and meetings for the exchange of resources and dissemination of security education information and assist contractors in establishing supporting briefing materials.

I. **Mission Supporting Goals and Objectives - SAFEGUARDS AND SECURITY OPERATIONAL SUPPORT** (Cont'd)

- o Headquarters Guard Contract provides security, including upgrades in quality of service, for the protection of Government property, classified matter, and personnel at headquarters buildings.

- o Personnel Security evaluates, reviews, and develops guidance and documents for use in evaluating the Personnel Security Assurance Program (PSAP) as it relates to medical, psychological, legal, security, and management components. Researches and prepares technical documents to support the Accelerated Access Authorization Program (AAAP). Provides technical assistance and operational support to the AAAP program manager to determine current status of science and technology in the AAAP component areas.

- o Additional Support provides Headquarters and field elements with support to implement cost-saving safeguards and security measures. Support includes technical assessments, vulnerability assessment support, technical and engineering assistance, surveys, performance testing, technical background on policy issues, arms control support, administrative and technical guidance in the development of computer security policy for classified systems, and the security alarm system at Headquarters. The Safeguards and Security Information Management System (SSIMS) tracks and reports classified safeguards and security issues from all DOE field sites.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Nuclear Materials Management and Safeguards System (NMMSS)	1,600	0	0	0	0
Central Training Academy (CTA)	8,867	8,736	8,400	(336)	(4%)
Information Security	1,152	1,152	1,152	0	0
Security Education Briefing and Awareness	181	181	181	0	0
Headquarters Guard Contract	10,029	8,629	8,500	(129)	(1%)
Personnel Security	705	485	485	0	0
Additional Support	3,073	3,348	3,153	(195)	(6%)
Total, Safeguards and Security Operational Support	$ 25,607	$ 22,531	$ 21,871	$ (660)	(3%)

III. Performance Summary:

FY 1995 Accomplishments:

NUCLEAR MATERIALS MANAGEMENT AND SAFEGUARDS SYSTEM

- Completed parallel processing by the Nuclear Materials Management and Safeguards System (NMMSS) and the International Nuclear Analysis program.

CENTRAL TRAINING ACADEMY

- The Central Training Academy conducted 112 courses with 176 classroom iterations.

INFORMATION SECURITY

- Provided security to sensitive DOE Headquarters facilities in greater Washington, DC, area through the Technical Surveillance Countermeasures (TSCM) program, ensuring protection from hostile intelligence or industrial espionage.

- Operated Information Security Resource Center (ISRC) providing TSCM and OPSEC workshops and 11 information security classes.

SECURITY EDUCATION BRIEFING AND AWARENESS

- Upgraded security education materials to reflect changes in security requirements

HEADQUARTERS GUARD CONTRACT

- Completed and submitted for approval a Headquarters Protective Forces Training Approval Plan.

- Provided security manpower for two additional buildings in Germantown in response to the Oklahoma City bombing incident.

- A new Headquarters protective force was selected.

PERSONNEL SECURITY

- Operated the Center for Human Reliability Studies providing support for the Personnel Security Assurance Program (PSAP) through guidance and product development; and research, development, and technical expertise in the areas of psychological assessment, substance abuse testing, medical assessment, and legal issues.

ADDITIONAL SUPPORT

- Performed line item construction project reviews in the DOE complex resulting in potential outlay program cost savings of $30 million.

- Assisted field elements in treaty inspection activities/preparation, conducted vulnerability assessment and training, safeguards and security surveys, and technical assessments; streamlined the Site Safeguards and Security (SSSP) process, assisting five field offices in the development and acceptance testing of SSSPs; and the Training Approval Program reviewed, validated, and approved site-specific training programs for all safeguards and security topical areas.

- Provided onsite support before, during, and after a protective force strike at Rocky Flats, and potential strikes at the Idaho Operations Office and the Mound Facility, to ensure appropriate security.

- Initiated training in support of new Headquarters protective force radio system and initiated functional and operational requirements for integrating the Headquarters badging system and access control systems with the DOE Integrated Security System (DISS).

- Provided support to the Safeguards and Security Information Management System (SSIMS) which tracks and reports classified safeguards and security issues DOE wide.

FY 1996 Accomplishments (to date and planned):

CENTRAL TRAINING ACADEMY

- The Central Training Academy will conduct 115 courses with 180 classroom iterations with emphasis on "On-line Training."

INFORMATION SECURITY

- Through operation of ISRC, revise all information security system courses to integrate new restricted data security program; and conduct TSCM and OPSEC workshops and information security classes.

SECURITY EDUCATION BRIEFING AND AWARENESS

- Upgrade security education requirements by implementing changes specified in the National Industrial Security Plan (NISP) of January 1995 and Executive Order 12958 of April 1995.

HEADQUARTERS GUARD CONTRACT

- First full year of operation of new protective force contract.

- Implement a Supervisor Certification Program to improve the quality of protective force supervision, and an Award Fee Process designed to improve protective force performance.

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PERSONNEL SECURITY

- Expand the PSAP telecommunications network through the electronic bulletin board system that will be made available to DOE and DOE contractor personnel.

ADDITIONAL SUPPORT

- Perform line item construction project reviews and technical assessments, ensuring continued resource optimization in the DOE complex; assist field sites in treaty inspection/vulnerability assessments; and streamline the SSSP process.

- Complete enhancements to Germantown security area access control system and the Headquarters alarm system; complete training in support of the new Headquarters protective force radio system; and continue integrating Headquarters badging system and access control systems with the DISS.

- Maintain support for SSIMS activities.

FY 1997 Planned Accomplishments:

CENTRAL TRAINING ACADEMY

- The Central Training Academy will conduct 124 course offerings with 180 classroom iterations. Provide training for a community of approximately 6,000 protective force members to ensure adequate protection of nuclear materials, classified information, and nuclear facilities.

- Provide training for safeguards and security professionals involved in highly technical and sophisticated programs dedicated to protection of national security interests.

INFORMATION SECURITY

- Maintain operation of ISRC, converting information security courses to distance learning activities.

SECURITY EDUCATION BRIEFING AND AWARENESS

- Through education programs, provide security awareness throughout the DOE complex.

HEADQUARTERS GUARD CONTRACT

- Ensure that a sound protection program is offered to Headquarters employees and facilities.

PERSONNEL SECURITY

- Maintain operation of the Center for Human Reliability Studies by providing support for the PSAP through guidance and product development; expert technical advice and assistance; updating and revising of PSAP materials; and as technical liaison with Department of Defense Personnel Security Research Center (PERSEREC), Department of Defense Security Institute, Department of Polygraph Institute, and other similar agencies and institutions.

ADDITIONAL SUPPORT

- Perform line item construction reviews and technical assessments, ensuring continued resource optimization in the DOE complex; assist field sites in treaty inspection/vulnerability assessments; streamline the SSSP process; and provide other technical assistance and engineering assistance to field sites in the implementation of safeguards and security measures.

- Provide enhancements and modifications to Headquarters alarm system; integrate the Headquarters badging system and access control system with other Headquarters personnel data bases; and maintain the Headquarters protective force radio system at a 98% operational level.

- Maintain support for SSIMS activities.

Explanation of Funding Changes FY 1996 to FY 1997:

A total decrease of $660,000 from FY 1996 to FY 1997 results from: a $336,000 reduction to the Central Training Academy, a $129,000 reduction to the Headquarters Protective Force contract to align it with expected contract cost, and a $195,000 reduction to Additional Support applied to access control activities.

TECHNOLOGY AND SYSTEMS DEVELOPMENT
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

The Technology and Systems Development program's mission is to develop new or modify existing technologies to protect DOE facilities, nuclear materials and classified information from existing and evolving threats such as insiders and terrorists. The program is formulated to address documented user requirements within the DOE complex and to meet Headquarters policy needs. The program will be able to address approximately 47% of these documented user needs.

The Technology and Systems Development program is divided into the following subprograms:

- Science and Technology Development Projects includes all activities ranging from basic research to full scale development and technology transfer of a technology or system that will address a safeguards and security deficiency.

- Technology Application and Transfer Projects includes activities necessary to modify a proven technology for safeguards and security applications.

- Technology Support, Assistance, and Consultation Tasks includes technical training, technical support to Headquarters, technical workshops and seminars, and technical support and assistance to the DOE complex.

Each subprogram is concentrated in the following disciplines:

- Physical Security: Activities are focused in detection; access control; control and display; assessment; barrier/delay; and personnel subsystems.

- Material Control and Accounting: Efforts are focused in nuclear material measurements; material accounting; material control; training; and statistical methods.

- Information Security: Projects are focused on advice and assessment; education and awareness; incident response; tools and technology; and integration and assurance.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Science and Technology Development Projects	$ 17,583	$ 16,523	$ 16,543	$ 20	0%
Technology Application and Transfer Projects	450	1,072	820	(252)	(24%)
Technology Support, Assistance and Consultation	2,122	3,310	3,270	(40)	(1%)
Total, Technology and Systems Development	$ 20,155	$ 20,905	$ 20,633	$ (272)	(1%)
Crosswalk of Disciplines					
Physical Security	$ 7,404	$ 7,738	$ 7,681	$ (57)	(1%)
Material Control and Accountability	9,877	10,114	9,782	(332)	(3%)
Information Security	2,874	3,053	3,170	117	4%
Total	$ 20,155	$ 20,905	$ 20,633	$ (272)	(1%)

III. Performance Summary:

FY 1995 Accomplishments:

PHYSICAL SECURITY ($7,404)

- Developed a wireless and secure video transmission capability to provide enhanced detection capabilities at DOE sites at reduced lifecycle costs.
- Developed a polled tag technology for remotely monitoring nuclear materials in a manner that is resistant to insider tampering. This system will provide increased confidence that no materials have been stolen or diverted without the need for physical checks, thus reducing costs and personnel radiation exposure.
- Designed the badge and ancillary equipment necessary to provide a standard badging system for use throughout the DOE complex.

- Completed testing standards for passive infrared (PIR), microwave, ported coax, exterior infrared (IR), and metal detectors. These standardized testing procedures will be used throughout the DOE complex to ensure there are no vulnerabilities with new equipment being installed.

- Initiated a national security product certification program to standardize the performance requirements of security equipment that can be procured for use within the DOE complex

- Modified existing software code capable of identifying sabotage vulnerabilities to meet DOE radiological protection requirements, and developed a Sabotage Target Identification and Vulnerability Course

- Completed functional requirements document for currently existing and future alarm annunciation and entry control systems so that DOE sites can make informed procurement decisions in this highly technical and confusing area.

- Published the DOE physical protection guide to provide the DOE community and other federal agencies with the latest technologies/methodologies in intrusion detection and assessment systems.

- Developed concepts for using technology to eliminate requirements for two door portals at DOE sites to reduce costs while maintaining adequate security.

- Vulnerability assessment of hand geometry units which are used to protect sensitive facilities throughout DOE.

- Developed a prototype nonautonomous exterior sensor tester to reduce personnel involvement in sensor testing throughout the DOE complex, thus resulting in reduced operating costs and personnel radiation exposure.

- Developed fixtures that test physical security sensors without human stimulus thus preventing human exposure to harmful environments.

- Developed a prototype system for automated property protection to prevent the theft of high-cost government property.

MATERIAL CONTROL AND ACCOUNTING ($9,877)

- Completed second generation continuous automated vault inventory system for remotely monitoring nuclear materials in a vault. This system confirms the presence of nuclear materials in storage and extend the time between physical inventories, reducing costs and personnel radiation exposure.

- Completed Xenon gas handling system to be used as an unattended room-temperature nuclear material monitor to confirm the presence of nuclear materials.

- Completed test and evaluation of computer controlled calorimeter to measure nuclear material. This system will reduce radiation exposure by reducing human interaction.

- Completed fabrication of high wattage Mound electrical calibration heater probe which can be used to calibrate calorimeters without using nuclear materials.

- Began building prototype Access by Controlled Remote Sensing system which will be used by international inspectors to inspect departmental facilities through video cameras, monitors, and sensors, not by actual physical interaction.

- Added the isotopic analysis capability to the segmented gamma scanning (SGS) technique to measure the isotopic distribution of plutonium. This allows the characterization of additional isotopes that are not easily measured with the SGS because of the unavailability of standards and provides more accurate accountability of special nuclear materials.

- Delivered a software package that allows active neutron measurements of highly enriched uranium to provide a more accurate and rapid measurement capability.

- Transferred the miniature modular multichannel analyzer technology to private industry to provide a commercial source of instruments to measure holdup.

- Finalized the American Society for Testing and Materials (ASTM) standard test method on californium shuffler assay of waste.

- Completed the windows tomographic gamma scanner software that will provide more rapid and accurate measurements of waste drums.

INFORMATION SECURITY ($2,874)

- Developed a methodology for analyzing what needs to be logged (for information system auditing purposes) based upon the stated DOE site security policy.

- Designed an information systems security server to be used by the entire departmental computer security community to disseminate security tools, patches, policy, and related information.

- Fielded the first real-time version of the network intrusion detection software across the DOE complex. This software will be used to identify hacker, or other types of system break-in signatures.

- Formalized a collection and reporting system for communication of computer operating system and network vulnerabilities. Established procedures for exchange of this sensitive information within DOE, and with other federal incident response teams.

- Field tested Binary Authentication Tools to be used to verify the origin, version, and resulting security of software to be used throughout DOE.

- Expect to complete and field a network based security profile inspection tool for distributed mode inspections of DOE information systems.

- Developed second generation document text analyzer to be used as an automated classification reviewing tool. Created graphical user interface and multiple phrase analysis capability.

- Forewarned of SATAN network security analyzer release. Following release, developed a scan detector to alert network administrators when SATAN was being used to probe their information systems for attack vulnerabilities.

- Developed technology for conducting electronic open meetings in support of National Performance Review re-inventing government initiatives. Evaluated those technologies for security related issues and vulnerabilities.

- Increased performance of network mapping software tool from 254 hosts/1380 seconds to 254 hosts/approximately 3 seconds. Tool is used to detect unauthorized hosts on classified and unclassified computer networks.

- Accredited first Department of Energy multilevel network which allows users with various access levels to share the same information system, thus reducing hardware and software costs.

- Completed classified electronic document management system. More than fifty systems are currently in use throughout DOE.

- Demonstrated basic components of a prototype multilevel document management center.

- Constructed and used testbed network for evaluating new multilevel information system products.

- Developed automated information system tool to detect waste, fraud, and abuse of computer systems.

- Developed and conducted computer security awareness and training courses.

FY 1996 Accomplishments (to date and planned):

PHYSICAL SECURITY ($7,738)

- Create the ability to vary physical security system designs without having to rerun the ASSESS code every time a change is made. This will allow the user to clearly screen design options from the perspective of cost.

- Develop additional sensors for remotely monitoring special nuclear material in vaults to reduce human and radiation exposure.

MATERIAL CONTROL AND ACCOUNTING ($10,114)

- Complete an automated non-destructive assay system for weapons component dismantlement. This automated system will reduce human radiation exposure and the threat of nuclear material theft or diversion.

- Complete a local area network materials accounting system (LANMAS) that will provide the DOE complex with a standardized materials accounting system.

- Complete upgrade of a high-efficiency neutron counter to improve measurement control for neutron non-destructive assay measurements.

- Implement uranium position correction techniques in waste drum shufflers to improve measurement accuracy.

- Complete implementation of a software code at Savannah River Site and additional sites implementing LANMAS. This code performs automated analysis of material accounting data to determine if measurements are within proper control limits, thus reducing the threat of diversion or theft.

- Test and evaluate the prototype segmented add-a-source system in conjunction with a commercial vendor under a cooperative research and development agreement (CRADA). This system will provide the ability to measure the plutonium content in waste drums and other bulk containers.

- Finalize the American Society for Testing and Materials (ASTM) standard test method Nondestructive Assay of Nuclear Material in Waste By Combined and Active Prompt Neutron Counting.

- Complete testing of the final gamma-ray software on the actual segmented gamma scanner that will be used for unmeasured inventory, thus improving nuclear material accountability.

- Complete testing of the final neutron software on the modified shuffler that will be used for unmeasured inventory resulting in improved nuclear material accountability.

- Complete customized miniature modular multichannel analyzer package for unattended operations and thus provide automated, real-time quantitative monitoring of nuclear materials.

- Publish an updated vehicle monitor applications guide which will assist DOE with the specification, evaluation, calibration, and proper use of this technology.

- Complete delivery of an end-user acoustic resonance intrinsic seal system which will confirm the presence of nuclear materials in storage.

- Transfer an image processing-based surveillance system that is used to confirm the presence of nuclear materials in storage, to private industry. This system can be used to prolong the frequency of physical inventories, thus reducing operational costs and personnel radiation exposure.

- Install the target monitoring and alarm system at a DOE site. This system will provide the capability of monitoring a specific target and generating an alarm and/or transmitting video surveillance data on event detection.

- Complete construction of an automated spectrophotometric instrument for sensitive, precise measurement of plutonium based on the Pu(VI) spectrum.

- Complete servo-control and preheater for over/under calorimeter to reduce the time required for a measurement and ultimately reduce radiation exposure.

- Complete field-deployable special nuclear material gamma-ray fingerprint monitor which will compare a measurement of an item to a previous measurement to ensure the nuclear material has not been removed or altered.

- Complete low wattage Mound electrical calibration heater probe which can be used to calibrate calorimeters without using nuclear materials.

- An integrated nuclear materials control and accountability system which contains material and personnel tracking systems, nuclear accountability system, and material control and access systems will be completed and installed at Savannah River Site and other sites throughout the DOE complex.

INFORMATION SECURITY ($3,053)

- Complete security study on trusted data management systems to determine the effectiveness of various research and development tools for preventing uncleared users access to sensitive information.

- Implement a prototype multilevel document management center in DOE.

- Evaluate several new multilevel information system products on DOE test bed network.

- Publish functional requirements for a national software protection service in support of potential on-demand system software authentication program and automated software update capabilities to DOE users.

- Develop computer security incident handling tools in response to contemporary information system vulnerabilities and attackers.

- Demonstrate an automated information system prototype to provide real-time detection and response to unauthorized activities in a computer network.

- Implement first prototype client/server multilevel network in DOE.

- Develop advice and assistance program to help DOE sites protect their electronic perimeters (analogous to fences protecting physical structure perimeters).

- Provide computer security personnel with an up-to-date database of all known computer system vulnerabilities to aid incident response teams in analyzing new breakins.

- Complete implementation of ramped-up monitoring and deliver an integrated graphical user interface network intrusion detection tool to provide better computer security via increased detection.

- Evaluate the commercial security profile inspector tool to ensure it meets DOE computer security functional requirements.

FY 1997 Planned Accomplishments:

PHYSICAL SECURITY ($7,681)

- Field a laser radar technology which will allow the following: three-dimensional imaging of adversaries for a more robust detection capability, a reduced or eliminated requirement for exterior lighting; and a detection system that is resistant to camouflage defeat techniques

- Redesign the cold smoke generator. Smoke obscurants are the most widely used access delay dispensable in the DOE complex and the new design will permit the system life to be extended from 5 to 12 years.

- Develop a door sensor that can be performance tested remotely; a door sensor that can detect sawing or cutting through the door as well as door movement; and a door sensor that is resistant to defeat techniques.

- Produce a smoke obscurant that costs 90% less than current obscurants; increases expected lifetime from 5 years to 20 years; and has no single point vulnerabilities to provide greater access delay capabilities at DOE facilities.

- Develop the ability to detect metals hidden on people that are difficult to detect by metal detectors such as lead. Such materials are likely to be used to shield SNM and defeat metal detectors in theft scenarios.

- Develop the capability to automatically and remotely test infrared, microwave, wall penetration, and ported coax sensors which reduces hazardous exposure to personnel, insider threat, and the cost of the test.

- Increase detection capabilities by developing an integrated system which is capable of screening vehicles for hidden people, contraband, explosives, and nuclear materials.

MATERIAL CONTROL AND ACCOUNTING ($9,782)

- Complete a small sample in-plant calorimeter which will characterize small samples/standards that cannot be accurately and precisely assayed by other techniques.

- Complete a guide on the construction of non-destructive assay calibration materials for the DOE facility user community.

- Demonstrate the acoustic resonance spectroscopy technique as a method to measure holdup. Holdup is special nuclear materials found in such places as ducts and pipes. It must be accurately accounted for to ensure that no material has been stolen or diverted and maintain accountability of nuclear materials.

- Implement an integrated nuclear materials control and accountability system which contains material and personnel tracking systems, nuclear accountability system, and material control and access systems at multiple DOE sites.

- Complete the room-temperature Xenon gamma-ray spectrometer which increases the number of locations that can be measured due to the reduced size of the measurement system equipment.

- Begin optimization of gamma-ray instruments using Monte Carlo methods which reduces the amount of nuclear materials required to develop and calibrate a nuclear material measurement system.

- Expand nuclear material tamper-indicating seals usage to extend inventories and for international inspection use to ensure nuclear materials are not altered or removed.

INFORMATION SECURITY ($3,170)

- Begin development of DOE/National software assurance program to manage (from a security prospective) the rapid and voluminous change in software and operating systems.

- Develop a manufacturer independent automated information system security patch installation tool for use by DOE computer security administrators.

- Develop computer security incident handling tools in response to contemporary information system vulnerabilities and attackers. (Since information system technology is evolving so rapidly, cannot predict specific tool needs this far in advance.)

- Examine/develop methods to archive DOE information system security server contents (with expert systems, hypertext documents, etc) while maintaining user accessibility to the data.

- Create new generic signature detection algorithms that allow users to describe new computer system intrusion threats.

Explanation of Funding Changes FY 1996 to FY 1997:

The Technology and Systems Development program reflects a net decrease of $272,000 from FY 1996 to FY 1997. This reduction is primarily in the Technology Application Program.

CLASSIFICATION/DECLASSIFICATION
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

The majority of the Classification/Declassification program is now funded in the Program Direction budget. The portion of the Classification/Declassification program funded here is primarily provided by Management and Operating (M&O) contractors in the field in support of the ongoing base program as well as support of the declassification initiative. The ongoing base classification program includes the routine review and development of classification guidance. The declassification initiative includes the accelerated review of technical classification guidance to implement fundamental review recommendations and development of advanced technologies to improve the efficiency and productivity of the document declassification review process.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Classification/Declassification	$ 3,911	$ 48 a/	$ 2,254	$ 2,206	4,595%
Total, Classification/ Declassification	$ 3,911	$ 48	$ 2,254	$ 2,206	4,595%

a/ Pending reprogramming increase of $3,000,000 for the Declassification Productivity Initiative.

III. Performance Summary:

FY 1995 Accomplishments:

- Initiated the first systematic and comprehensive examination of the DOE's classification policies ever conducted by the Department with the purpose of declassifying and releasing to the public as much information as possible within our national security constraints.
- Launched the Declassification Productivity Initiative to begin long-range development of innovative technologies that will automate and improve the efficiency and productivity of the declassification process.

FY 1996 Accomplishments (to date and planned):

- Complete the fundamental review of DOE's classification policies and submit recommendations for changes to the Secretary for approval.

FY 1997 Planned Accomplishments:

- Initiate the multiyear effort to develop specific classification guidance to implement those fundamental review recommendations approved by the Secretary.
- Proceed with development of advanced automation technology to improve the productivity and accuracy of the document declassification process which supports the Declassification Productivity Initiative.
- Continue implementation of Executive Order 12958 on Classified National Security Information.

Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $2,206,000 provides for: $900,000 for the implementation of Executive Order 12958 on Classified National Security Information; $700,000 for further development of advanced automation technology in support of the Declassification Productivity Initiative; and $606,000 to support the base Declassification Program.

FACILITIES OPERATIONS
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives:

Facility operations funds capital equipment to support the Nuclear Safeguards and Security mission in the field offices and at Headquarters.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 3,088	$ 2,688	$ 2,450	$ (238)	(9%)
Total, Facilities Operations	$ 3,088	$ 2,688	$ 2,450	$ (238)	(9%)

III. Performance Summary:

FY 1995 Accomplishments:

- o Provided support to field offices for operations and technology development equipment requirements consistent with level of funding for technology development.
- o Provided support to Headquarters for capitalized computer equipment requirements.
- o Completed alarm system and access control upgrades in several Headquarters program offices.
- o Completed installation and startup of new badging system.

FY 1996 Accomplishments (to date and planned):

- o Provides support to field offices for operations and technology development equipment requirements consistent with level of funding for technology development.
- o Provide support to Headquarters for capitalized computer equipment requirements.
- o Complete procurement and installation of Headquarters Protective Force Radio System.

FY 1997 Planned Accomplishments:

- o Maintain support to field offices relative to needs in support of technology development and to Headquarters for capitalized computer equipment requirements.

- o Provide modification and/or replacement of parts to Headquarters alarm and access control system.

Explanation of Funding Changes FY 1996 to FY 1997:

The reduction of $238,000 is a result of increased AOSS requirements in FY 1997. The funding of AOSS requirements is now supported in the Program Direction budget. As a result, this funding decrease is offset as an increase in the Program Direction budget.

SECURITY INVESTIGATIONS

PROGRAM MISSION

The Security Investigations Program funds background investigations for DOE and contractor personnel who, in the performance of their official duties, require access authorizations for Restricted Data, National Security Information, or special nuclear material.

The GOAL of the Security Investigations Program is to:

Support the common defense and security of the United States by ensuring that only appropriate personnel have access to classified information, special nuclear material, or occupy sensitive positions.

The OBJECTIVES related to these goals are:

1. Reduce the types and numbers of access authorizations consistent with DOE mission changes, the downsizing of the nuclear weapons complex, and other classified programs and activities.
2. Ensure the timely and efficient processing and adjudication of initial access authorization requests and reinvestigations.
3. Support development and implementation of an electronic network among DOE field offices, DOE contractors, the Office of Personnel Management (OPM) and other Federal agencies to reduce the overall access authorization processing time.

PERFORMANCE MEASURES:

1. Conduct approximately 19,000 personnel security clearance investigations and reinvestigations.
2. Reduce the numbers and levels of access authorizations.
3. Meet requirement of Executive Order 12968 dated August 2, 1995, that reinvestigations be conducted with the same priority as initial investigations.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Backlogged reinvestigations have been eliminated; however, current funding shortfalls may create new backlogs beginning in FY 1996 and accelerating in FY 1997.
- Processing and adjudication time frames are being met.
- The number of access authorizations has been reduced by 20 percent in the past 5 years.

SECURITY INVESTIGATIONS

PROGRAM FUNDING PROFILE
(Dollars in thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Security Investigations	$ 32,799	$ 20,000	$ 0	$ 20,000	$ 22,000
Subtotal, Security Investigations	$ 32,799	$ 20,000	$ 0	$ 20,000	$ 22,000
Adjustment	(25,894) a/	0	0	0	0
TOTAL, SECURITY INVESTIGATIONS	$ 6,905	$ 20,000 b/	$ 0	$ 20,000 b/	$ 22,000

a/ Use of prior-year balances; includes Reprogramming 95-R-17 ($6.2 million) to Arms Control for North Korean spent fuel related activities, and a $15 million Rescission.

b/ Does not reflect the use of at least $13 million in prior-year uncosted balances and $2.3 million in unobligated carryover.

Public Law Authorizations:

Public Law 83-703, "Atomic Energy Act of 1954"

SECURITY INVESTIGATIONS

(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office	$ 8,000	$ 6,977	$	$ 6,977	$ 5,275
Chicago Operations Office	300	0	0	0	200
Idaho Operations Office	896	630	0	630	400
Nevada Operations Office	1,000	700	0	700	600
Oak Ridge Operations Office	5,300	0	0	0	2,800
Oak Ridge Inst. of Sci. & Eng.	200	385	0	385	385
Pittsburgh Naval Reactors Office	2,292	0	0	0	1,100
Rocky Flats Office	1,200	316	0	316	900
Richland Operations Office	997	880	0	880	800
Oakland Operations Office	2,700	1,502	0	1,502	1,700
Lawrence Livermore National Lab.	2,000	4,200	0	4,200	2,000
Savannah River Operations Office	3,050	2,507	0	2,507	2,000
Schenectady Naval Reactors Office	724	712	0	712	500
Washington Headquarters	4,140	1,191	0	1,191	3,340
Subtotal	32,799	$ 20,000	$ 0	$ 20,000	$ 22,000
Adjustment	(25,894) a/	0	0	0	0
TOTAL	$ 6,905	$ 20,000 b/	$ 0	$ 20,000 b/	$ 22,000

a/ Use of prior-year balances; includes Reprogramming 95-R-17 ($6.2 million) to Arms Control for North Korean spent fuel related activities, and a $15 million Rescission.

b/ Does not reflect the use of at least $13 million in prior-year uncosted balances and $2.3 million in unobligated carryover.

SECURITY INVESTIGATIONS

PROGRAM OBJECT CLASS SUMMARY

Direct Obligations:		FY 1995 Non-Comp. Approp.	FY 1995 Comparable Approp.	FY 1996 Non-Comp. Approp.	FY 1996 Comparable Approp.	FY 1997 Budget Request
25.2	Other Services	$ 3,550	$ 3,550	$ 6,055	$ 6,055	$ 3,540
25.3	Purchases of Goods and Services from Government Accounts	29,249	29,249	13,945	13,945	18,460
99.9	Subtotal	32,799	32,799	20,000	20,000	22,000
	Adjustment	(25,894) a/	(25,894) a/			
99.9	TOTAL	$ 6,905	$ 6,905	$ 20,000 b/	$ 20,000 b/	$ 22,000

a/ Use of prior-year balances; includes Reprogramming 95-R-17 ($6.2 million) to Arms Control for North Korean spent fuel related activities, and a $15 million Rescission.

b/ Does not reflect the use of at least $13 million in prior-year uncosted balances and $2.3 million in unobligated carryover.

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SECURITY INVESTIGATIONS

(Dollars in thousands)

I. Mission Supporting Goals and Objectives

The Security Investigations Program funds background investigations for DOE and contractor personnel who, in the performance of their official duties, require access authorizations for Restricted Data, National Security Information, or special nuclear material.

II. Funding Schedule:

Program Activitiy	FY 1995	FY 1996	FY 1997	$ Change	% Change
Federal Bureau of Investigation					
Background Investigations	$ 78	$ 49	$ 49	$ 0	0
Office of Personnel Management					
Initial Background Investigations					
Single Scope Background	15,049	5,993	6,750	757	13
Initial Background	178	74	116	42	57
Limited Background	562	601	598	-3	-1
Reinvestigations					
Periodic Reinvestigaton-SBI	12,512	5,431	8,109	2678	49
Limited Background	0	1,098	1,150	52	5
National Agency Checks	870	699	773	74	11
Related Security					
Investigations Activities	3,550	6,055	4,455	-1,600	-26
Subtotal	32,799	$ 20,000 a/	$ 22,000	$ 2,000	10
Use of Prior-Year Balances	(25,894)	0	0	0	0
Total Security Investigations	6,905	20,000	22,000	2,000	10

a/ Does not reflect the use of at least $13 million in prior-year uncosted balances and $2.3 million in unobligated carryover.

III. Performance Summary: SECURITY INVESTIGATIONS

FY 1995 Accomplishments:

- Continued work on a state-of-the-art electronic transfer program for personnel security clearances between OPM and DOE field offices, DOE contractors, and other Federal agencies to minimize the manual handling of clearances and reduce the overall access authorization time
- Conducted 28,583 personnel security clearance investigations
  - 4,076 initial investigations
  - 11,122 reinvestigations
  - 13,385 National Agency Checks

FY 1996 Accomplishments (to date and planned):

- Due to unanticipated problems in modernization of the clearance program through development of the electronic transfer program, increased efforts will be made to complete this vital system.
- Conduct approximately 27,746 personnel security clearance investigations.
  - 2,300 initial investigations
  - 13,515 reinvestigations
  - 11,931 National Agency Checks
- Continue to reduce the numbers and levels of clearances in excess of those necessary to support the current DOE mission.

FY 1997 Planned Accomplishments:

- Conduct 19,145 personnel security clearance investigations
  - 1,797 initial investigations
  - 6,762 reinvestigations
  - 10,586 National Agency Checks
- The electronic transfer program is expected to be operational throughout DOE.
- Further reduce the numbers and levels of clearances in excess of those necessary to support the current DOE mission.

Explanation of Funding Changes, FY 1996 to FY 1997:

Approximately 43 percent of FY 1996 support comes from use of prior-year uncosted balances and unobligated carryover, which will not be available in FY 1997. It is estimated that 27,746 personnel security clearance investigations will be conducted in FY 1996, and 19,145 investigations will be conducted in FY 1997. The reduced request (down 38 percent from the FY 1996 level of spending) will support 503 less initial investigations and 6,753 less reinvestigations.

III. Performance Summary: SECURITY INVESTIGATIONS

Major Issues:

- o OPM privatization has potential consequences for the Department in terms of cost, efficiency, and effectiveness.
- o The FY 1997 funding level could begin a reinvestigations backlog and inability to conduct required initial investigations.

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EMERGENCY MANAGEMENT

PROGRAM MISSION

The Office of Emergency Management serves as the single point of contact and control for all Departmental emergency management and threat assessment related activities and ensures an integrated response to emergencies affecting Departmental operations and activities or requiring Departmental assistance. The principal mission of the Office is to provide comprehensive, integrated emergency planning, preparedness, and response programs throughout the Department and to provide threat assessment support to the Department's Headquarter and field operations. The Office operates the Headquarters Emergency Operations Center and the Department emergency communications network; develops and operates reliable capabilities to detect and assess developing emergency situations and threats; and issues all policy and guidance for the Department's emergency programs. This program also operates the HAZMAT Spill Center (formerly the Liquefied Gaseous Fuels Spill Test Facility) which supports the formulation of emergency management policy for hazardous materials and conducts research in partnership with government and industry.

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The GOAL of the Emergency Management Program is to:

Support the National Security of the United States by ensuring an integrated Departmental response to all emergencies.

The OBJECTIVES related to this goal are:

1. Maintain national security and ensure protection of workers, the public, and environment.

2. Fully execute a Departmental program in support of other U.S. Government agencies for combating nuclear terrorism and support to crisis and consequence management to any terrorist act.

3. Maintain the capability to provide technical advice and assistance to Departmental elements for cost effective implementation of emergency management programs.

4. Develop, maintain, and promulgate policy; planning and preparedness guidance; and readiness assurance activities.

PROGRAM MISSION - EMERGENCY MANAGEMENT (Cont'd)

5. Operate and maintain the Headquarters Emergency Operations Center and Department emergency communications network.

6. Provide program management for operations of the HAZMAT Spill Center (formerly the Liquefied Gaseous Fuels Spill Test Facility) program.

7. Maintain emergency programs to minimize adverse impacts of energy supply disruptions on national security, public safety and the energy infrastructure.

8. Assess the vulnerabilities of the Nation's energy supply systems.

9. Promote the Department's emergency policy interests in international fora.

PERFORMANCE MEASURES:

1. Conduct 12 emergency management system training and technical assistance workshops.

2. Conduct 6 emergency management system appraisals.

3. Support/conduct 6 Department-wide drills and exercises.

4. Conduct 10 tests at the HAZMAT Spill Center (formerly the Liquified Gaseous Fuels Spill Test Facility).

5. Provide situation assessments within 1 hour after identification of a potential emergency.

6. Conduct emergency assessment conferences for Federal, state, tribal and industry groups.

7. Increase the role and visibility of the Department as a leader in the formulation of National Security related policies for combating terrorist and nuclear materials trafficking.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Conducted additional emergency management system appraisals, training and assistance workshops, and Department-wide drills and exercises.

PROGRAM MISSION - EMERGENCY MANAGEMENT (Cont'd)

- Improved operation of DOE's emergency management system and emergency facilities through technical assistance.
- Increased customer involvement in planning, preparedness, and readiness assurance activities.
- Improved collaborative efforts with Federal, state, tribal and industry entities to prepare for and respond to emergencies.
- Provided situation reports and assessments for developing emergencies.
- Provided an annual report on illicit nuclear material transactions.
- Initiated an Assessment Program in collaboration with the FBI's National Center for the Analysis of Violent Crime.
- Linked the FBI (Quantico, VA) to the Headquarters emergency operations center voice, data and video connection.
- Initiated a departmental program to support other U.S. Government agencies in combating nuclear terrorism and crisis and consequence management to any terrorist act.
- Initiated a program to increase the role and visibility of the Department as a leader in the formulation of National Security related policies for nuclear materials trafficking.

EMERGENCY MANAGEMENT
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Emergency Management Operating Expenses	11,224 1/	21,821 1/	-6,455	15,366 1/	15,294 2/
Facilities Operations Capital Equipment	2,000	1,500	0	1,500	1,500
TOTAL, Emergency Management	13,224 3/	23,321	-6,455	16,866 3/	16,794

1/ Includes funding previously provided by Interior and Other Related Agencies Appropriation.

2/ Does not include funding of $1.1M for the proposed transfer of the Forrestal Communications Center from Human Resources and Administration to Emergency Management.

3/ Program Direction Funding was transferred to the Program Direction Decision Unit; see the comparability matrices for FY 1995 and FY 1996 included in the Nonproliferation and National Security Executive Summary.

EMERGENCY MANAGEMENT
PROGRAM FUNDING BY SITE
(Dollars in Thousands)

Laboratory and Facility Funding	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Argonne National Lab (West)	15	0	0	0	0
Brookhaven National Lab	200	300	0	300	300
Lawrence Livermore National Lab	330	800	0	800	800
Idaho National Engineering Lab	260	200	0	200	200
Los Alamos National Lab	50	100	0	100	100
Nevada Operations Office	3,940	6,500	0	6,500	6,500
Oak Ridge Operations Office	1,850	1,800	0	1,800	1,800
Pacific Northwest Lab	200	200	0	200	200
Sandia National Labs	500	200	0	200	200
Washington Headquarters	5,879	13,221	-6,455	6,766	6,694
TOTAL	13,224 1/	23,321 1/	-6,455	16,866 1/	16,794

1/ Includes funding previously provided by Interior and Other Related Agencies Appropriation.

EMERGENCY MANAGEMENT
PROGRAM OBJECT CLASS SUMMARY
(Dollars in Thousands)

DIRECT OBLIGATIONS:	FY 1995 Non-Comp Appropriation	FY1995 Comparable Appropriation	FY1996 Non-Comp Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
25.1 Advisory and Assistance services	0	2,500 1/	2,300 1/	2,300 1/	2,100 1/
25.2 Other Services	0	8,324	17,121	10,666	10,894
25.3 Purchases of Goods and Services from Government Accounts.	0	2,400 2/	2,300 2/	2,300 2/	2,200 2/
25.4 Operation and Maintenance of Facilities Hazmat Spill Center (formerly Liquified Gaseous Fuels Spill Test Facility)	0	0	1,600	1,600	1,600
99.9 TOTAL DIRECT OBLIGATIONS	0	13,224	23,321	16,866	16,794

1/ Funding for Emergency Operations Center to support 24 hour operation and communications network.

2/ Funding for dedicated emergency communications network.

I. Mission Supporting Goals and Objectives

The Office develops and implements specific programs, plans and systems to minimize the impact of emergencies on national security, worker and public safety, and the environment. The Office provides overall coordination or consultation regarding the Department's Emergency Management System, including emergency assistance and mobilization activities, energy emergencies, and activities related to emergencies involving hazardous materials (radiological and non-radiological). The Office promulgates Departmental requirements and implementing guidance, and conducts readiness assurance activities to ensure appropriateness and effectiveness. The Office also coordinates inter-agency and intra-Departmental emergency planning and preparedness, as well as coordinating with state and local governments, international agencies and foreign governments, and industry on emergency planning and preparedness issues.

Another mission area is to identify and assess hostile threats to Departmental facilities, interests and personnel and assess the credibility of nuclear threats received world-wide, supporting U.S. Government and allied nations efforts for the prevention of illicit nuclear materials trafficking worldwide. The Office operates and maintains Headquarters 24-hour per day emergency operations facilities for the collection and processing of information relative to emergency notifications and reporting and support of emergency management activities at the Headquarters level and implements a security program for the protection of Office information, equipment, and facilities.

To effectively implement its mission, the Office develops and maintains capabilities to effectively and efficiently integrate and coordinate Departmental response to all emergencies. The Office provides liaison and coordination regarding operational emergency response activities, and monitors the national and international energy supply and distribution networks and infrastructures, providing appropriate situation reports and assessments as part of a coordinated Departmental emergency or pre-emergency response. Additionally, the HAZMAT Spill Center (formerly the Liquified Gaseous Fuels Spill Test Facility) provides the DOE community, other governmental agencies, and private sector customers with a unique training, testing, and technical center for hazardous materials research relating to emergency management.

The Department's Headquarter Emergency Operations Center, 24-hour per day Operations Center Watch Office function, and emergency communication network are supported by a support service contract. The FY 97 planning level for this support is $2.1 million.

These activities are in support of the Atomic Energy Act of 1954, as amended, Presidential Decision Directive 39, Executive Orders 12656 and 12919, the Defense Production Act of 1950 as amended, and environment related regulations including the Resource Conservation and Recovery Act, Superfund Amendments and Reauthorization Act of 1986, Conservation Environmental Response Compensation and Liability Act, and Clean Air Act Amendments of 1990.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Emergency Management	$ 8,724	$ 11,466 1/	$ 11,594 2/	$ +128	+1.1
HAZMAT Spill Center (Formerly Liquified Gaseous Fuels Spill Test Facility)	0	1,600	1,600	0	0
Emergency Operations Support Service Contract	2,500	2,300	2,100	(200)	-8.7
Total, Emergency Management	$ 11,224	$ 15,366	$ 15,294	$ (72)	-0.5

1/ Change is a result of Interior and Related Agencies Appropriation being absorbed into Energy and Water Appropriation in FY 1996.
2/ Does not include funding of $1.1M for the proposed transfer of the Forrestal communications center from Human Resources and Administration to Emergency Management.

III. Performance Summary:

FY 1995 Accomplishments:

- Conducted a full performance test of emergency management system at Idaho.
- Conducted five (5) technical assistance visits to assist Departmental elements in determining program weaknesses and cost effective means for making improvements and five (5) appraisals to ensure necessary improvements are being made.
- Conducted planning, training, and readiness assurance activities to ensure effective implementation of the Department's emergency management system.

PERFORMANCE SUMMARY (Cont'd)

- Evaluated five (5) tests and exercises of Departmental programs to demonstrate effective emergency response.
- Accomplished nation-wide link-up of DOE Operations offices and select National Laboratory emergency operation centers with the Headquarters emergency operations center voice, data, and video connection.
- Linked DOT and FBI to the Headquarters emergency operations center data connection.
- Conducted thirty (30) weeks of user-sponsored spill tests at the HAZMAT Spill Center (formerly the Liquified Gaseous Fuels Spill Test Facility).
- Provided technical assistance to state and local governments to assist recovery from energy emergencies.
- Prepared situation reports on energy problems for senior Departmental officials.
- Provided ten (10) training and assistance workshops to Departmental elements, state, local, and tribal governments.

FY 1996 Accomplishments (to date and planned):

- Conduct and evaluate full performance test of emergency management system at a Departmental site.
- Continue emphasis on emergency management system training and technical assistance workshops.
- Upgrade FBI link to Headquarters emergency operations connection to include full voice and video capabilities.
- Initiated a Departmental program to support other U.S. Government agencies in combating nuclear terrorism and crisis and consequence management to any terrorist act.
- Initiated a program to increase the role and visibility of the Department as a leader in the formulation of National Security related policies for nuclear materials trafficking.
- Increase customer and stakeholder involvement in emergency planning, preparedness, readiness assurance, and Department-wide drills and exercises.
- Link EPA and DNA to the Headquarters emergency operations center voice, data, and video connection.

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PERFORMANCE SUMMARY (Cont'd)

- Generate after-action reports with findings and recommendations for all emergency situations and exercises involving NN staff and ensure follow-up of appropriate corrective actions to enhance the emergency management system.

- Conduct user-sponsored spill tests for both Government and industry at the HAZMAT Spill Center (formerly the Liquified Gaseous Fuels Spill Test Facility).

- Provide spill test results to Departmental elements, other government agencies, industry and the general public for use in hazards mitigation and emergency responder training programs.

- Respond to natural and man-made disasters as they occur to provide damage assessments and assistance to state and local governments and industry in restoration of essential energy services.

- Assist states in developing all-hazards emergency plans.

- Sponsor emergency assessment conferences for Departmental elements, state, tribal, and local governments and industry groups.

FY 1997 Planned Accomplishments.

- Continue operational enhancement and networking of the Headquarters emergency operations center voice, data, and video connection.

- Continue to provide independent evaluations of Departmental emergency management drills and exercises and conduct a full performance test of the emergency management system at a Departmental site.

- Deliver new emergency management system training and technical assistance workshops developed to meet specific needs.

- Increase customer and stakeholder involvement in emergency planning, preparedness, readiness assurance, and Department-wide drills and exercises.

- Upgrade the HAZMAT Spill Center (formerly the Liquefied Gaseous Fuels Spill Test Facility) to increase attractiveness to industry and other government agencies. Expand the scope of user-sponsored spill testing for both Government and industry.

- Respond to natural and man-made disasters as they occur to provide damage assessments and assistance to state and local governments and industry in restoration of essential energy services.

PERFORMANCE SUMMARY (Cont'd)

- Assist states in developing all-hazards emergency plans.
- Sponsor emergency assessment conferences for Departmental elements, state, tribal and local governments and industry groups.
- Strengthen support to U.S. and international efforts aimed at improving emergency response programs world-wide.
- Continue support to U.S. activities aimed at combating terrorism.
- Strengthen and expand the Department's support for crisis and consequence management in combating terrorism and nuclear material trafficking.

FACILITIES OPERATIONS
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives:

Continue to procure and test new equipment throughout DOE Emergency Operations Centers. Facility operations funds capital equipment to support the emergency management mission.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 2,000	$ 1,500	$ 1,500	$ 0	0
Total, Facilities Operations	$ 2,000	$ 1,500	$ 1,500	$ 0	0

III. Performance Summary:

FY 1995 Accomplishments:

- Expanded equipment capacity to bring additional users on to the DOE network, including DOT and FBI.

FY 1996 Accomplishments (to date and planned):

- Continue to ensure necessary equipment upgrades for further expansion of network to enable other Federal agency and Departmental users to join the network.

FY 1997 Planned Accomplishments:

- Continue enhancements of the network to accommodate all potential users.

NONPROLIFERATION AND NATIONAL SECURITY PROGRAM DIRECTION

PROGRAM MISSION

The Nonproliferation and National Security (NN) Program Direction budget provides funds for all Federal personnel-related expenses, contractual services, and capital equipment which support Federal staff at Headquarters and the Chicago and Nevada Operations Offices who are engaged in the following functions aimed at reducing the global nuclear danger: Nonproliferation and Verification Research and Development, Arms Control, Intelligence, Nuclear Safeguards and Security, Security Investigations, and Emergency Management programs.

The GOAL of Program Direction is to provide a staff that can direct and manage nonproliferation and national security functions critical to ensuring a strong nonproliferation environment, and national security posture both domestically and world-wide. These staff activities include strategic planning and policy development, integration of internal and external policies and directives, intra and interagency representation, technical direction and guidance of programs and projects, program assessment and internal controls, and management of fiscal and personnel resources in an effective and efficient manner.

The OBJECTIVES related to this goal are:

- Provide management, direction, oversight and implementation of programs totalling $586,972,000
- Provide highly qualified technical staff to oversee technology development, research and development projects, and sensitive operational programs
- Provide staff to carry out our statutory requirements, executive directives, national security directives, treaties, bilateral agreements, and emergency response requirements
- Provide professional development and achievement

PROGRAM MISSION NONPROLIFERATION AND NATIONAL SECURITY PROGRAM DIRECTION - (Continued)

PERFORMANCE MEASURES:

Provide salaries, benefits, travel, training, contractual services, and other related costs for Nonproliferation and National Security programs' Headquarters and field Federal employees necessary to meet mission requirements

Continue to balance rightsizing goals of the Strategic Alignment Initiative and the National Performance Review with new programmatic imperatives

Continue to conduct management reviews to assure resources are distributed in a manner consistent with program priorities

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- The Office of Nonproliferation and National Security (NN) has met the reductions of the Strategic Alignment Initiative and has redeployed positions to expanding program areas.

- NN has streamlined our organization, going from 74 organizational elements in 1992 to 25 in 1996. We have gone from a ratio of 1.8:1 employees per supervisor to 11:1

- NN has consolidated fiscal and resource management responsibilities, eliminating duplicate activities

- NN has integrated nonproliferation and national security missions in a dynamically changing domestic and worldwide environment

- NN has consolidated safeguards and security responsibilities and functions and eliminated redundancy and duplication with other Headquarters program offices

- It has consolidated DOE emergency management activities making this organization the single manager for the department

PROGRAM MISSION NONPROLIFERATION AND NATIONAL SECURITY PROGRAM DIRECTION - (continued)

BUDGET STRUCTURE CHANGES

In accordance with guidance contained in House Report 104-293, FY 1996 Energy and Water Development Appropriations Conference Report, all Other Defense Activities Federal staff have been transferred from six nonproliferation and national security programs to a new Decision Unit called NN Program Direction (see the comparability matrices for FY 1995 and FY 1996 included in the Nonproliferation and National Security Executive Budget Summary). In addition all support services contracts have been transferred to the new Program Direction decision unit. For FY 1997 the Department will implement a Working Capital Fund which includes "Other Related Costs" such as space, utilities, printing and reproduction, communications, etc. These Other Related Costs have been transferred from the Departmental Administration appropriation to the Nonproliferation and National Security Program Direction Decision Unit.

NONPROLIFERATION AND NATIONAL SECURITY

PROGRAM DIRECTION FUNDING PROFILE

(Dollars in thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Nonproliferation and Verification R&D	$ 5,154	$ 0	$ 5,424	$ 5,424	$ 5,900
Arms Control	14,326	0	15,907	15,907	17,266
Intelligence	11,252	0	11,379	11,379	12,701
Nuclear Safeguards and Security	37,020	0	38,223	38,223	45,706
Emergency Management	12,344	0	6,455	6,455	6,277
Hearings and Appeals	0	0	0	0	2,000
Working Capital Fund	5,351	0	5,421	5,421	5,772
Subtotal, Program Direction	$ 85,447	$ 0	$ 82,809	$ 82,809	$ 95,622
Adjustment	0	0	0	0	0
TOTAL, PROGRAM DIRECTION	$ 85,447	$ 0	$ 82,809	$ 82,809	$ 95,622
Subtotal Field	6,920	0	6,973	6,973	6,458
Subtotal Headquarters	78,527	0	75,836	75,836	89,164
Total, Program Direction	$ 85,447	$ 0	$ 82,809	$ 82,809	$ 95,622
Staffing (FTE's)					
Field FTE's	71	0	72	72	70
Headquarters FTE's	363	0	336	336	353
Total FTE's	434	0	408	408	423
Average Cost per FTE	$ 197	$ 0	$ 202	$ 202	$ 226

Nonproliferation and National Security Summary
PROGRAM DIRECTION OBJECT CLASS SUMMARY
Noncomparable & Comparable
(Dollars in Thousands)

	FY 1995 Noncomp. Approp.	FY 1995 Comp. Approp.	FY 1996 Noncomp. Approp.	FY 1996 Comp. Approp.	FY 1997 Budget Request
PERSONAL SERVICES AND BENEFITS					
Personnel Compensation					
11.1 Full Time permanent	0	26,912	0	24,971	28,651
11.3 Other than full-time permanent	0	494	0	492	612
11.5 Other personnel compensation	0	1,558	0	1,388	1,547
11.8 Special personal services payments	0	528	0	594	575
11.9 Total personnel compensation	$0	$32,780	$0	$31,439	$35,527
Personnel Benefits					
12.1 Civilian personnel benefits	0	4,993	0	4,851	6,067
13.0 Benefits for former personnel	0	150	0	86	231
CONTRACTUAL SERVICES AND SUPPLIES					
21.0 Travel and transportation of persons	0	3,046	0	2,541	2,700
23.1 Rental Payments to GSA	0	5,019	0	4,517	4,809
23.3 Communications, utilities and misc. charges	0	317	0	255	260
24.0 Printing and reproduction	0	889	0	912	983
25.1 Advisory and assistance services	0	29,704	0	28,246	33,414
25.2 Other services	0	3,671	0	4,768	5,828
25.7 Operation and maintenance of equipment	0	2,445	0	3,033	3,210
26.0 Supplies and materials	0	652	0	589	549
ACQUISITION OF ASSETS					
31.0 Equipment	0	1,781	0	1,572	2,044
99.9 Total	$0	$85,447	$0	$82,809	$95,622

NONPROLIFERATION AND NATIONAL SECURITY PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities:
The Nonproliferation and National Security (NN) program direction budget provides for all Federal personnel required at DOE Headquarters, and two field offices to carry out the program's mission in a cost effective and efficient manner. It provides salaries and benefits, travel, support service contracts, and other related expenses associated with the overall management, direction, and administration of the following programs:

Verification and Control Technology
- Nonproliferation and Verification Research and Development
- Arms Control Nonproliferation
- Intelligence

Nuclear Safeguards and Security
Security Investigations
Emergency Management

Travel funds required to carry out program mission while away from official duty stations, per diem allowances as well as local travel are carried in this decision unit. Travel is an essential part of staff duties in order to conduct hands-on operations both domestic and international, participate in highly technical agency and interagency committees, and to ensure appropriate Government representation in policy meetings.

Support services contracts funding is included in this decision unit. These contracts support Federal staff at Headquarters and in the field. The daily operation and associated technical direction of the contracts remain with program managers in each organization. These contracts provide technical, analytical, administrative, and operational support in multiple program areas such as safeguards and security, declassification and classification; intelligence activities; emergency management; threat assessment; research and development, and arms control.

Mission Supporting Goals/Ongoing Responsibilities--CONTINUED:
"Other Related Expenses" are identified for all NN space, utilities, general printing, graphics, copying, supplies, telephones, general automation support, SES bonuses, etc. The funding identified in this account was estimated by Departmental Administration using a different historical basis for computing each category (i.e, one month's sampling, square footage, percent of total value of an account, etc.). As requested by Congress, NN has included these estimates in the Program Direction account.

The structure of the Nonproliferation and National Security Program Direction budget follows:

Headquarters:
- Office of the Director and Office of Resource Management (includes a portion of the DOE Hearings and Appeals staff)
- Office of Research and Development
- Office of Energy Intelligence
- Office of Arms Control and Nonproliferation
- Office of Security Affairs
- Office of Emergency Management

Field Offices:
- Chicago
- Nevada

The mission, goals, and management responsibilities for each organizational entity follows:

Office of the Director and Office of Resource Management :
The Office of the Director provides overall executive direction for the Office of Nonproliferation and National Security (NN) in the most effective and efficient manner for carrying out its policies and objectives. The Resource Management Office provides planning, budget, personnel, staffing, administrative, and logistical support for all NN programs, as well as career development training and information management.

The Office of the Director and Resource Management funds are salaries, benefits, and travel for 20 Hearings and Appeals personnel. These personnel serve to make recommendations on the eligibility of an applicant to possess a DOE security clearance. The remaining personnel in the Office of Hearings and Appeals is located in the Interior and Related Agencies appropriation.

Funding for "Other Related Expenses" are carried under this program element.

Mission Supporting Goals/Ongoing Responsibilities--CONTINUED:

The Office of Research and Development:

The Office of Research and Development develops a broad range of advanced technologies tailored specifically for proliferation detection and arms control verification. It manages several hundred applied research, technology development, system fabrication, prototype production, and software tasks. It integrates and coordinates interagency research and development activities on policy and objectives associated with proliferation detection and arms control verification.

This office manages the only U.S. Government research and development program dedicated to providing nonproliferation treaty verification technologies and systems. It provides the technical direction and the interagency coordination of research and development into a broad range of advanced sensor and analytical technologies tailored specifically for proliferation detection and arms control verification. It manages the Verification and Technology Research and Development work performed at the national laboratories which improve our capability to support current as well as future operational and technical requirements.

To facilitate coordination, this office regularly participates in sponsors briefings and technical reviews with the intelligence, arms control, law enforcement and military communities to identify operational shortcomings and technology requirements. The staff serves on ten formal interagency advisory panels including co-chairing the Nonproliferation and Arms Control Technology Working Group, and the department's representative on the Director of Central Intelligence's Community Management Staff, Advanced Research and Development Committee.

The office staff translates technology requirements into development tasks, provides technical guidance and financial direction to the national laboratories, serves as technical liaison within the interagency community, reviews the programmatic and technical progress of ongoing work, develops the programmatic input to the budget, and provides fiscal oversight and documentation. The staff provides technical advice and directs an integrated technical program to support policy development to implement new strategies on cooperative arms control, international safeguard transparencies, current and future treaty verification scenarios, and irreversible nuclear arms reductions.

Office of Energy Intelligence:

The Office of Energy Intelligence provides for the planning, coordination, and implementation of all DOE National Foreign Intelligence Program related activities. A functional profile of a typical analyst includes providing case officer support, current intelligence analysis, program management, and Intelligence Community liaison.

Mission Supporting Goals/Ongoing Responsibilities--CONTINUED:
These intelligence personnel are responsible for the management of all source foreign intelligence and counterintelligence data, providing all appropriate DOE components with current intelligence information required to effectively implement their respective programmatic missions; and maintaining awareness of current and international situations which may affect current or future U.S. energy policies.

Staff responsibilities also include providing the DOE interface with the Intelligence Community through participation in Director Central Intelligence committees, subcommittees, and working groups. Intelligence Community interface is also provided through participation in the National Intelligence Estimate process.

Office of Arms Control and Nonproliferation:
The Office of Arms Control and Nonproliferation mission is to reduce the threat of nuclear proliferation by integrating and orchestrating the Department's assets and efforts, including those of its national laboratories and contractors in providing policy and technical support to the US Government's foreign policy and national security objectives in the areas of arms control and nonproliferation, and to the international arms control and nonproliferation communities.

The Office analyzes arms control and nonproliferation issues and problems, formulates policy, goals and objectives, and determines program priorities for implementing approaches and activities directed at solving identified problems. It directs the program work supporting arms control and nonproliferation of the areas of International Policy and Analysis, Export Control, and International Safeguards, as well as the task force implementing Materials Protection, Control and Accounting in the Former Soviet Union (FSU).

The Office focuses on the following critical program priorities: securing nuclear materials and expertise in Russia and the other Newly Independent States; limiting weapon-usable fissile materials; establishing transparent and irreversible nuclear reductions; strengthening the nuclear nonproliferation regime; and controlling nuclear exports.

The Office personnel represent, as appropriate or directed, the Department of Energy in the U. S. Government's interagency process in arms control and nonproliferation and in the national and international arms control and nonproliferation communities.

Office of Security Affairs:
The Office of Security Affairs encompasses the Office of Safeguards and Security (S&S), and the Office of Declassification.

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Mission Supporting Goals/Ongoing Responsibilities--CONTINUED:
The Office of Safeguards and Security mission is to ensure adequate protection for nuclear weapons, weapons components, special nuclear material, nuclear facilities, and classified information under the DOE control. It serves as the single manager for the Safeguards and Security program and formulates policies and plans to assure effective protection of DOE facilities and the domestic control and accountability nuclear materials and sensitive information; acts as focal point for interagency matters on S&S; integrates Department wide operations; directs over a hundred technology development projects for domestic protection and integrates interagency policy and activities associated with domestic technology development projects; performs physical protection responsibilities in support of nonproliferation policies and agreements; directs the personnel security program; ensures effective and efficient training of DOE-wide safeguards and security personnel, implements a comprehensive security program for protection of DOE Headquarters facilities, personnel and classified and sensitive matter. Functions include such disciplines as physical security, material control and accountability, personnel security, and technical and information security. Finally, it manages and directs the department's Security Investigations program, the Central Training Academy and the technical direction of the New Brunswick laboratory.

The Office of Declassification directs the ongoing base classification program as well as the declassification initiative. The ongoing base program includes: review and development of classification guidance, conduct of biennial classification appraisals of DOE operations offices, development and conduct of training courses for DOE classification community, and automated classification guidance system updating. The declassification initiative includes the fundamental review of DOE's classification policies, accelerated review of technical classification guidance, accelerated review of documents for declassification, training and certification of declassifiers, and development of advanced technologies to assist document review.

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The Office of Declassification personnel develop and implement policies to declassify and publicly release information which poses no national security or nonproliferation threat or concern; ensure that DOE policies and procedures are in step with the current national and international environment; evaluate current declassification and classification policies and procedures; continue activities to develop, manage, and implement policies to identify classified information and certain unclassified but sensitive information.

The Office of Declassification manages programs to reevaluate fundamental classification policy; streamline information declassification procedures; accelerate and enhance document review process; develop and implement DOE-wide classification and declassification policies, guidance, and procedures for Restricted Data/Formerly Restricted Data as required by the Atomic Energy Act of 1954, as amended, and for National Security Information as required by Executive Order 12598.

Mission Supporting Goals/Ongoing Responsibilities--CONTINUED:

Office of Emergency Management:

The Office of Emergency Management directs and manages DOE's Emergency Management program and serves as the single point of control and contact for all Departmental emergency management and threat assessment related activities. It ensures an integrated Departmental response to emergencies affecting Departmental operations and activities. The principal mission of the Office is to provide comprehensive, integrated emergency planning, preparedness, and response programs throughout the Department's Headquarter and field operations.

The Office operates the Headquarters Emergency Operations Center, and the Department's emergency communications network; develops and operates reliable capabilities to detect and assess developing emergency situations and threats; and issues all policy and guidance for the Department's emergency programs. This program also operates the HAZMAT Spill Center (formerly Liquified Gaseous Fuels Spill Test Facility) which supports the formulation of emergency management policy for hazardous materials and conducts research in partnership with government and industry.

This office develops and implements specific programs, plans and systems to minimize the impact of emergencies on national security, worker and public safety, and the environment. It develops policy, provides coordination or consultation on emergency assistance and mobilization activities, energy emergencies, hazardous materials (both radiological and non-radiological), promulgates DOE requirements and implementing guidance, conducts readiness assurance activities and coordinates interagency and intra-departmental emergency planning and preparedness. It assesses hostile threats to DOE facilities, interests and personnel, and assesses credibility of nuclear threats, and supports efforts for the prevention of illicit nuclear materials trafficking worldwide. This office operates and maintains a 24 hour round-the-clock Headquarters emergency operations facility. It is responsible for integration of emergency response capabilities, liaison and coordination of operations emergency response, and also monitors national and international energy supply and distribution networks and infrastructures.

OPERATIONS OFFICES

Chicago Operations Office

- New Brunswick Laboratory (NBL) is a federally staffed laboratory funded through the Program Direction account, but technically managed and directed by the Office of Safeguards and Security. NBL is the Center of Excellence in nuclear materials measurement. It provides technical expertise in the areas of measurement science and material accounting . NBL provides reference materials to meet requirements for nuclear measurement control and calibration for verification of materials in process or storage. The laboratory also performs technical audits of safeguards practices in the DOE complex to assess special nuclear material protection system effectiveness.

Mission Supporting Goals/Ongoing Responsibilities--CONTINUED:

- Chicago Safeguards and Security Office manages and directs the on-site safeguards and security program for the Chicago office. It advises, assists and supports Program Managers, Area Office Managers, and Contracting Officers in the development and implementation of effective and efficient S&S programs.

Nevada Operations Office provides for a Federally staffed Proliferation Response Team within the Nevada Operations Office. This team has functions in Nevada's management of Arms Control Research and Development's for such areas as: treaty negotiation, treaty verification equipment maintenance, and personnel development and maintenance for DOE field treaty support and management, as well as contractual support to DOE Headquarters for the U.S. Nuclear Terrorism Communicated Threat Program.

II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp. Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Chicago					
Salary and Benefits	3,413		3,554	3,554	3,586
Travel	175		185	185	185
Support Services	0		0	0	0
Other Related Expenses	2,239		2,106	2,106	1,534
TOTAL	$5,827	$0	$5,845	$5,845	$5,305
Full Time Equivalents	62		63	63	62
Average	$94		$93	$93	$86
Nevada					
Salary and Benefits	652		546	546	568
Travel	80		54	54	56
Support Services	350		525	525	525
Other Related Expenses	11		3	3	4
TOTAL	$1,093	$0	$1,128	$1,128	$1,153
Full Time Equivalents	9		9	9	8
Average	$121		$125	$125	$144
Headquarters					
Salary and Benefits	33,858		32,276	32,276	37,671
Travel	2,791		2,302	2,302	2,459
Support Services	29,354		27,721	27,721	32,889
Other Related Expenses	12,524		13,537	13,537	16,145
TOTAL	$78,527	$0	$75,836	$75,836	$89,164
Full Time Equivalents	363		336	336	353
Average	$216		$226	$226	$253

Funding Table--CONTINUED:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp. Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Total Nonproliferation and Security					
Salary and Benefits	37,923		36,376	36,376	41,825
Travel	3,046		2,541	2,541	2,700
Support Services	29,704		28,246	28,246	33,414
Other Related Expenses	14,774		15,646	15,646	17,683
TOTAL	$85,447 a/	$0	$82,809 a/	$82,809 a/	$95,622
Full Time Equivalents	434		408	408	423
Average	$197		$202	$202	$226

a/ See the comparability matrices for FY 1995 and FY 1996 included in the Nonproliferation and National Security Executive Budget Summary

III. Performance Summary:

FY 1995 Measurable Performance Activities:

- Managed, directed, and implemented the following programs: nonproliferation and verification research and development; arms control; intelligence; nuclear safeguards and security; security investigations; and emergency management.
- Reviewed, coordinated, and performed "hands-on" as well as technology assistance to Departmental sites and National Laboratories to resolve problems related domestic safeguards and security.
- Reviewed and coordinated requests and provided technical direction for technology and procedural assistance to Departmental sites, state and local governments, Indian Tribes, and contractor facilities concerning emergency response activities related to Departmental operations.
- Formulated, presented, and executed a $472 million budget for internal purposes, and for the Department's senior management, the Executive Branch, and the Congress. Prepared and presented testimony on NN programs to Congressional committees, subcommittees, and staff
- Responded to informal and formal inquiries from the Congress, the General Accounting Office, and the Inspector General on program policy and management issues
- Developed, or teamed in the development of National Intelligence estimates
- Prepared analytical pieces for use by the interagency policy community
- Fulfilled intelligence responsibilities assigned to the Department by Executive Order 12333.
- Consolidated Safeguards and Security roles and responsibilities in line with Strategic Alignment initiative. Removed duplication and redundance of safeguards and security activities, and empowered the field on implementation activities.
- Reviewed 450,000 documents for declassification purposes.
- Expanded public access to DOE information by developing a publicly available computer database (known as OpenNet) which contains bibliographic information on over 250,000 publicly releasable, declassified documents.
- Conducted 43 training courses, which included courses for Classification Officers and Analysts, authorized classifiers and declassifiers, Unclassified Controlled Nuclear Information Reviewing Officials, and document reviewers in other agencies.
- Conducted classification appraisals of four field offices, which included assessments of large-scale document review programs at two of the field offices appraised.
- Conducted full performance test of emergency management system at Idaho
- Conducted 5 technical assistance appraisals to assist Departmental elements in determining program weaknesses and cost effective means for making improvements
- Conducted planning, training, and readiness assurance activities to ensure effective implementation of the Department's emergency management system
- Conducted tests and exercises of Departmental programs to demonstrate effective emergency response

Performance Summary--CONTINUED:

- Accomplished nation-wide link-up of DOE Operations offices and select National Laboratory emergency operation centers with the Headquarters emergency operations center voice, data, and video connection
- Linked DOT and FBI to the Headquarters emergency operations center data connection
- Conducted 7 user-sponsored spill tests at the HAZMAT Spill Center
- Provided technical assistance to state and local governments to assist recovery from energy emergencies
- Prepared situation reports on energy problems for senior Departmental officials

FY 1996 Measurable Performance Activities:

- Manage, direct, and implement the following programs: nonproliferation and verification research and development; arms control; intelligence; nuclear safeguards and security; security investigations; and emergency management.
- Review, coordinate, and perform "hands-on" as well as technology assistance to Departmental sites and National Laboratories to resolve problems related to domestic safeguards and security.
- Review and coordinate requests and provide technical direction for technology and procedural assistance to Departmental sites, state and local governments, Indian Tribes, and contractor facilities concerning emergency response activities related to Departmental operations.
- Formulate, present, and execute a $576 million budget for internal purposes, and for the Department's senior management, the Executive Branch, and the Congress. Prepare and present testimony on NN programs to Congressional committees, subcommittees, and staff
- Respond to informal and formal inquiries from the Congress, the General Accounting Office, and the Inspector General on program policy and management issues
- Fulfill intelligence responsibilities assigned to the Department by Executive Order 12333 by satisfying high priority Departmental intelligence needs through effective interaction with the Intelligence Community.
- Develop a Nonproliferation and National Security Strategic Plan.
- Develop a 5-year nonproliferation research and development program plan as requested in the National Defense Authorization Act for FY 1996.
- Submit a report on Security Investigations to Congressional defense committees consistent with National Defense Authorization Act for Fiscal Year 1996.
- Manage and direct the DOE safeguards and security program.
- Review 450,000 documents for declassification purposes.
- Continue to expand the number of declassified documents referenced on OpenNet.
- Conduct 45 training courses, which will include courses for Classification Officers and Analysts, authorized classifiers and declassifiers, Unclassified Controlled Nuclear Information Reviewing Officials, and document reviewers in other agencies.

Performance Summary--CONTINUED:

- Conduct classification appraisals of five field offices, which will include assessments of large-scale document review programs at four of the field offices appraised.
- Begin implementation of Executive Order 12958 on Classified National Security Information.
- Evaluate and support two full performance tests of the emergency management system at Department sites
- Continue emphasis on emergency management system training and technical assistance workshops
- Link FBI to the Headquarters emergency operations center voice and video connection
- Link EPA and DNA to the Headquarters emergency operations center voice, data, and video connection
- Conduct 9 user-sponsored spill tests for government and industry at the HAZMAT Spill Center
- Assist states in developing all-hazards, all-fuels emergency plans
- Sponsor energy industry emergency/security committees
- Respond rapidly to natural and man-made disasters to provide damage assessments and assistance to governments and industry in restoration of essential energy services

FY 1997 Measurable Performance Activities:

- Manage, direct and implement the following programs: nonproliferation and verification research and development; arms control; intelligence; nuclear safeguards and security; security investigations; and emergency management.
- Review, coordinate, and perform "hands-on" as well as technology assistance to Departmental sites and National Laboratories to resolve problems related domestic safeguards and security.
- Review and coordinate requests and provide technical direction for technology and procedural assistance to Departmental sites, state and local governments, Indian Tribes, and contractor facilities concerning emergency response activities related to Departmental operations.
- Formulate, present, and execute a $586 million budget for internal purposes, and for the Department's senior management, the Executive Branch, and the Congress. Prepare and present testimony on NN programs to Congressional committees, subcommittees, and staff
- Respond to informal and formal inquiries from the Congress, the General Accounting Office, and the Inspector General on program policy and management issues
- Fulfill intelligence responsibilities assigned to the Department by Executive Order 12333. Satisfy high priority Departmental intelligence needs through effective interaction with the Intelligence Community.
- Ensure that the Department's unique expertise can be utilized by the Intelligence Community to further US intelligence objectives.
- Have a direct impact on the policy making process by providing actionable intelligence that reaffirms or amends existing policy, or initiates new policy actions.
- Manage and direct the DOE safeguards and security operations and technology development program.
- Manage and direct the DOE Security Investigations program.
- Review 450,000 documents for declassification purposes.

Performance Summary--CONTINUED:

- Continue to expand the number of declassified documents referenced on OpenNet.
- Conduct 43 training courses, which will include courses for Classification Officers and Analysts, authorized classifiers and declassifiers, Unclassified Controlled Nuclear Information Reviewing Officials, and document reviewers in other agencies.
- Conduct classification appraisal of four field offices, which will include assessments of large-scale document review programs at all of the field offices appraised.
- Proceed with development of advanced automation technology to improve the productivity and accuracy of the document declassification process which supports the Declassification Productivity Initiative.
- Proceed with implementation of Executive Order 12958
- Conduct 10 tests at the HAZMAT Spill Center
- Conduct 12 emergency management system training and technical assistance workshops
- Support/conduct six Department-wide drills and exercises
- Provide situation assessments within 2 hours after identification of a potential energy emergency
- Conduct two seasonal energy assessment conferences for Federal, state and industry groups
- Review and coordinate field requests for assistance and provide assistance to field offices and contractor sites to resolve safeguards and security related problems.
- Serve on multiple safeguards and security committees and interagency committees to integrate Government-wide safeguards and security activities
- Direct over 100 safeguards and security technology develooment tasks at major laboratories and contractor facilities
- Summarize, review, and analyze the Department's Safeguards and Security Crosscut Estimates
- Implement and administer personnel security program for DOE headquarters
- Develop briefings, technical reports, maintain liaison with other Federal agencies, attend meetings, review and analyze reports,
- Prepare technical and administrative briefings, prepare testimony and defend programs, prepare internal, OMB and Congressional Budgets
- Update and revise existing policies
- Conduct management analysis studies and program reviews
- Prepare program plans, 5-year plans, and strategic plans
- Respond to Inspector General and GAO reports, OMB and Congressional inquires
- Implement office automation

IV. Explanation of Funding Changes FY 1996 to FY 1997:

Salaries and benefits increased $5,449,000 from FY 1996 to FY 1997. This results from a net increase of 15 FTE's in the NN headquarters organizations ($3,390,000) and ($2,059,000) for escalation, buyouts benefits, and miscellaneous expenses.

The SAI will revisit reallocation of FTE's during FY 1997, and because of the high priority currently placed on nonproliferation and national security, it is anticipated that additional FTE's will be allocated to NN during the reallocation process.

Travel increased $159,000 to cover the additional 15 FTEs being funded in FY 1997.

Support Services contracts increased by $5,168,000 from FY 1996 to FY 1997. This primary increase is in the Declassification program ($4,050,000) to provide additional support to work on Executive Order 12958 and DPI. The Intelligence program has an increase of $742,000 to cover Counterintelligence activities and Arms Control activities increased by $502,000 to cover export control, nuclear nonproliferation, and analytical support, and verification R&D $75,000. There was a modest decrease in Nuclear Safeguards and Security and Emergency Management contracts ($-201,000).

Other Related Expenses increased $2,037,000 from FY 1996 to FY 1997. Rental payments to GSA, including communications, utilities, and miscellaneous charges ($297,000), printing and reproduction ($71,000), other services ($1,060,000), operation and maintenance of equipment ($177,000), equipment ($472,000) and a reduction of $40,000 in supplies and materials.

V. Explanation of Average FTE Costs

FY 1997 is the first year for a Program Direction Decision Unit for the Office of Nonproliferation and National Security. The fully loaded cost per FTE is approximately $226,000. However, exclusion of support services contract dollars reduces that cost to approximately $147,000 per Federal FTE.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

ENVIRONMENT, SAFETY AND HEALTH

EXECUTIVE BUDGET SUMMARY

Mission:

The Office of Environment, Safety and Health (EH) works with line program managers to develop tools needed to manage safety at our facilities more effectively and at less cost to taxpayers. The Office has demonstrated that the Department can do its work better, more safely, and at less cost by integrating safety into the planning and execution of work. Safety is no longer viewed as an "add-on" that produces only paper and needless cost, but as an asset that allows efficient targeting of the most urgent risks, most efficient use of limited resources, and effective accomplishment of work.

The EH independent oversight program has been extremely useful in helping the Department effectively target risk. Comprehensive assessments provide DOE management with validated, professional appraisals of the site's performance, greatly aiding its ability to target resources to areas of greatest risk to workers, the public, and the environment. The foundation of the new approach is an analytic framework or "template" that clearly articulates the principles and operational elements of sound ES&H management programs. The template allows assessments to be based on clearly defined principles and performance expectations and not just on inspector's view.

The Office of Environment, Safety and Health (EH) is a corporate resource that fosters Departmental excellence through innovative leadership in the protection of workers, the public, and the environment. This commitment to excellence will be demonstrated by striving for continuous improvement in developing meaningful programs and policies; conducting independent oversight of environment, safety, and health performance; and providing technical resources, assistance, and information sharing domestically and abroad. Open communication, participation, and performance feedback on EH activities from relevant parties are integral to EH's success. EH seeks to ensure that Department of Energy (DOE) activities are conducted in a way that prevents accidents or injuries to workers and the public, and prevents harm to the environment. As the equivalent of a "corporate resource" for DOE, EH is the major source of expertise in disciplines such as environmental protection, nuclear safety engineering, public health, industrial hygiene, radiation protection, construction safety, risk management, epidemiology, and occupational medicine. Our goal is to leverage our resources and skills in a way that provides DOE's line management programs with the tools it needs to protect workers, the public, and the environment at DOE sites.

This goal takes on increasing urgency and complexity as DOE faces unprecedented hazards at its facilities, especially in the nuclear weapons complex. As a result of more than 50 years of nuclear weapons production and the rather sudden end of the Cold War, DOE harbors the largest

inventories of hazardous materials in the world outside of the former Soviet Union. Much of this material -- plutonium, spent fuel, and hazardous chemicals -- is stored in aging and deteriorating facilities, and in conditions and buildings that are in themselves hazards to workers. We lack reliable data for many of these facilities on the most basic issues, such as electrical and ventilation systems. DOE is also transitioning to new missions of weapons dismantlement, environmental cleanup, and decontamination and decommissioning. These newer tasks challenge DOE workers with highly dynamic and changing workplaces, where hazards are numerous and varied and exposures are unknown and unpredictable.

The overall major goals and objectives include the following.

Goal 1: Establish a standardized corporate independent oversight process that provides a credible process for appraising the effectiveness of environment, safety, health, and safeguards and security programs throughout DOE. To accomplish the goal of corporate independent oversight, the following objectives have been established: (a) identify, prioritize, and target Departmental needs for independent oversight; (b) incorporate the DOE's safety management guiding principles into all oversight activities; (c) institutionalize a coordinated and consistent independent oversight for the DOE; and (d) disseminate lessons learned to reinforce good practices of work planning, hazard analysis, and hazard control.

Goal 2: Establish a quality (timely, efficient, and effective) assistance program. To accomplish this technical assistance goal, the following objectives have been established: (a) establish management structure and supporting systems to achieve an effective technical assistance program; (b) identify potential environment, safety, and health assistance needs; (c) establish a priority-setting system for processing requests for assistance and delivering quality environment, safety, and health assistance; (d) continuously improve technical assistance through feedback; and (e) develop an outreach plan and program for technical assistance.

Goal 3: Develop an effective system of policies, rules, orders, and standards. To accomplish this policy/standards goal, the following objectives have been developed: (a) identify policy, requirements, guidance, and standards in existing environment, safety, and health orders; (b) develop a framework for order restructuring; (c) integrate orders' component parts into new environment, safety, and health orders system; and (d) implement a process to assess and improve the effectiveness of the new environment, safety, and health order system in protecting the environment and enhancing public and worker safety and health.

Goal 4: Establish a National Environmental Policy Act (NEPA) process that encourages managers to use NEPA, builds public trust, and minimizes cost and preparation/review time. To accomplish this NEPA goal, EH has established the following objectives: (a) implement NEPA contract reforms that provide incentives for quality and timely performance; (b) implement changes to improve the NEPA process; (c) implement additional reforms for high priority projects to deal with situations where schedule is of paramount importance; (d) implement enhancements for public involvement to encourage and facilitate public participation throughout the NEPA process; and (e) form a quality team to analyze the environmental impact statement process and recommend improvements.

Goal 5: Improve environment, safety, and health performance and management accountability by leading DOE-wide implementation of environment, safety, and health business and budget planning processes. To accomplish this goal, EH has established the following objectives: (a) develop and support implementation of a DOE-wide environment, safety, and health budget and planning process that defines scope, identifies costs, prioritizes activities based on relative risk, and allocates resources against established commitments in a visible manner for implementation of environment, safety, and health program activities; (b) improve environment, safety, and health performance through the application of total quality approaches to environment, safety, and health management processes; and (c) integrate environment, safety, and health in all Departmental business functions.

Goal 6: Establish an integrated information management program. To accomplish this goal, EH's objectives are: (a) formalize the information management function; (b) provide quality environment, safety, and health information to the public, EH, DOE, and other stakeholders; (c) provide users effective communication, sharing, and processing of quality information; and (d) continuously improve management of information.

Goal 7: Carry out EH's mission in an open, trustworthy, and responsive manner. To accomplish this goal, EH's objectives are: (a) establish and implement programs that strengthen the public's trust, confidence, and respect in and for EH; (b) establish and implement programs that strengthen the credibility and trust of EH by Departmental and contractor employees; and (c) support the Department's efforts in the reduction of national security information and to minimize future classification.

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EH is modeled after private corporations with the best environment, safety, and health records. Based on the premise that systems that effectively manage environment, safety, and health are also the key to improving the cost-effectiveness and efficiency of work, EH develops management systems for the line programs that proactively identify and efficiently cope with hazards before they cause accidents, disease, or environmental contamination.

The legal requirements that affect the activities of the EH organization include all environmental, safety, and health Federal regulations, as well as legislation such as the National Defense Authorization Act for Fiscal Year 1995.

Strategy:
EH's intent is to assure that quality, objectivity, responsiveness and innovation are hallmarks of all EH activities. In addressing EH's future posture and direction, planning began by identifying and capitalizing on current strengths and proceeding toward accomplishment of well-defined goals and objectives. EH focuses on developing management-level analytical products, reducing redundancies in DOE, and enhancing staff development. Since EH is the Departmental advocate for excellence in programs to protect the environment, as well as the health and safety of workers at DOE facilities and the public, EH serves its principal customers in the following major areas: (a) the development and establishment of environmental, safety, and health policies and rules for operation of Departmental facilities that are effective, and efficient; (b) conduct of independent oversight activities that provide a comprehensive status of environment, safety, health, and safeguards and security performance at

DOE facilities; and (c) technical assistance to the Department's programs to foster the identification and resolution of environment, safety, and health issues.

Major Changes:
The Office of Environment, Safety and Health (EH) works with line program managers to develop tools needed to manage safety at our facilities more effectively and at less cost to taxpayers. The Office has demonstrated that the Department can do its work, better, more safely, and at less cost by integrating safety into planning and execution of work. Safety is no longer viewed as an "add-on" that produces only paper and needless cost, but as an asset that allows efficient targeting of the most urgent risks, most efficient use of limited resources, and effective accomplishment of work. At Fernald, for example, the Department avoided nearly $2 million in costs by recognizing and avoiding unnecessary work. Safety personnel worked side by side with engineers, planners, and other workers to "build in" safety and health concerns into the actual planning of work. In much the same way, $500,000 was saved at a facility at the Hanford plant. This approach to work planning is to become standard practice throughout the DOE complex and will continue to save taxpayers millions of dollars year after year while also making work safer.

Vulnerability assessments led by the Office of EH identified conditions or weaknesses in the way we handle spent fuel, plutonium and hazardous chemicals that could affect the public or worker health or the environment. These analyses have allowed the Department to better set priorities and direct resources toward the most urgent risks. Overall, 281 of 503 corrective actions identified in the spent fuel report have been completed and 64 of 152 plutonium milestones have been met. For example, at the Hanford K-basins, actions were developed and will soon be implemented to remediate what were identified as the highest spent fuel risks in the complex. At Savannah River, the FB-Line and F-Canyons are operating and stabilizing plutonium solutions.

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A critical challenge today in DOE is doing new types of work and doing it at facilities that are no longer in sync with the Department's rules and orders. These "top down" orders were developed to meet the needs of a stable weapons production system. Decontamination, decommissioning, and environmental cleanup, on the other hand, involved hundreds of individual tasks in aging facilities with hazards that are unknown and difficult to predict. Many old, poorly-maintained buildings don't meet today's building codes and safety standards. The "Necessary and Sufficient Process" provides a graded approach to safety standards that allow us to tailor the standards to the work and the facilities. In a pilot application of this process at a major Hanford facility, we were able to greatly reduce worker exposure while cutting costs by 50 percent. The Department plans to use this process to proceed with safe and timely stabilization of facilities at Rocky Flats and other locations throughout the DOE complex.

The EH independent oversight program has been extremely useful in helping the Department effectively target risk. Comprehensive assessments providing DOE management with validated, professional appraisal of the site's performance, greatly aiding its ability to target resources to areas of greatest risk to workers, the public, and the environment. The foundation of the new approach is an analytic framework or "template" that clearly articulates the principles and operational elements of sound ES&H management programs. The template allows assessments to be based on clearly defined principles and performance expectations and not just one inspector's view. In December 1994, EH was reorganized along core

functional areas. The independent oversight of environment, safety, health, and safeguards and security activities were placed in one organization. Technical Assistance and Policy functions were also realigned. Health Studies encompass all the International Programs including Marshall Islands, as well as Occupational Medicine, and Epidemiologic Studies. This realignment assists EH in streamlining and providing the Department with a smaller, more technically adroit and more flexible EH organization.

In FY 1997, the budget structure of EH is changed to reflect the major business lines identified in its strategic plan. These business lines are Technical Assistance, Oversight, Policy, Health Studies, Radiation Effects Research Foundation program, NEPA, and Management and Administration, and they are divided into two major accounts (Non-Defense and Defense). Each account also has a Program Direction Decision Unit. Separation of these functions provides for avoidance of conflict of interest, as delineated in the Secretary's response to Section 3163 of the Fiscal Year 1995 National Defense Authorization Act. For example, the staff conducting oversight activities will be independent of both line management and technical assistance efforts and will be free of conflicts of interest that would compromise independence. Also, oversight funded in Other Defense Activities is not responsible for policy. The non-defense activities encompass technical assistance and policy operations, therefore providing for clear separation of functions along appropriation accounts as well as business lines.

Finally, savings in the EH program have been realized from reduced use of support services, improved productivity from Federal workforce, and reorganization along business lines that eliminated redundancies and refocused programs on prevention and providing practical, timely information to managers. Support service contracts have been reduced and consolidated from FY 1995 to FY 1997. FTEs were at 452 in FY 1995 and will be reduced to 422 in FY 1997. Travel expenditures will be reduced by approximately 20 percent from FY 1995 to FY 1997.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY and HEALTH
ORGANIZATION FUNDING PROFILE[1]

Sub-Program	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
EH Non-Defense			
Operating Expenses			
Technical Assistance	$34,419	$34,180	$29,220
Policy	2,560	2,600	2,340
NEPA	3,500	3,410	3,500
RERF	18,000	20,000	15,000
Management and Administration	24,701	24,100	23,100
Program Direction	45,113	39,315	39,046
Subtotal	128,293	123,605	112,206
Adjustment	0	-4,396	0
Subtotal Non-Defense	$128,293	$119,209	$112,206
EH Defense			
Operating Expenses			
Oversight	$18,300	$16,245	$14,526
Health Studies	41,767	41,645	38,568
Program Direction	10,810	11,766	10,706
Subtotal	70,877	69,656	63,800
Adjustment	- 6,600	0	0
Subtotal Defense	$64,277	$69,656	$63,800
TOTAL	**$192,570**	**$188,865**	**$176,006**

[1]Under the new budget structure, net shift of $13,549,000 in FY 1995 and $9,332,000 in FY 1996 from Energy Supply, Research and Development. The FY 1995 and FY 1996 columns are displayed in the new structure for comparison purposes only; the FY 1995 and FY 1996 programs are being implemented as appropriated.

Authorizations:
P.L. 83-703, "Atomic Energy Act of 1954"
P.L. 100-408, "Price Anderson Amendments Act of 1988"
P.L. 95-91, "Department of Energy Organization Act" (1977)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY, AND HEALTH
ORGANIZATION FUNDING BY SITE SUMMARY
(Dollars in thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Sandia National Laboratories	$312	$282	$263
Los Alamos National Laboratory	1,118	1,010	942
Brookhaven National Laboratory	4,009	3,622	3,378
Argonne National Laboratory	4,930	4,454	4,154
Idaho National Engineering Laboratory	6,681	6,036	5,629
Oak Ridge Institute for Science & Ed.	7,668	6,928	6,461
Oak Ridge National Laboratory	16,575	14,976	13,966
Pacific Northwest Laboratories	19,693	17,793	16,593
Lawrence Berkeley Laboratory	1,510	1,364	1,272
Lawrence Livermore Laboratory	9,422	8,513	7,939
Savannah River Technology Laboratory	191	173	161
Westinghouse Hanford	135	125	135
HQs	126,926	127,985	115,113
Adjustment	-6,600	- 4,396	0
TOTAL	$192,570	$188,865	$176,006

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET
ENVIRONMENT, SAFETY and HEALTH
ORGANIZATION FUNDING PROFILE

Sub-Program	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
FTEs			
Non-Defense	347	316	316
Defense	105	117	106
TOTAL	452	433	422

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY AND HEALTH
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995 Comparable	FY 1996 Comparable	FY 1997 Budget Request
Personnel Compensation:				
11.1	Full-time permanent	34,313	32,131	32,536
11.3	Other than full-time permanent	4,260	3,900	2,769
11.5	Other personnel compensation	1,222	1,130	1,080
11.9	Total personnel compensation	39,795	37,161	36,385
12.1	Civilian personnel benefits	6,216	5,926	5,756
13.0	Benefits for former personnel	209	150	150
21.0	Travel and transportation of persons	3,250	2,925	2,600
22.0	Transportation of things	0	0	0
23.3	Communications, utilities, and misc.	3,734	4,214	4,144
24.0	Printing and reproduction	350	450	473
25.1	Advisory and assistance services	36,032	16,162	13,746
25.2	Other services	39,467	61,157	47,310
25.4	Operation of GOCOs	0	0	0
25.5	Research and development contracts	64,189	68,943	65,198
26.0	Supplies and materials	100	255	244
31.0	Equipment	402	0	0
	Subtotal	193,744	197,343	176,006
	Use of Prior Year Balances	(6,600)	(4,396)	0
	Unobligated balance available; start of year	(3,052)	(4,082)	0
	Unobligated balance available; end of year	8,478	0	0
	TOTAL	$192,570	$188,865	$176,006

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF ENVIRONMENT, SAFETY AND HEALTH (EH)
(dollars in thousands)

FY 1995 COMPARABILITY MATRIX

CURRENT STRUCTURE

	Non-Defense					Non-Defense	Non-Defense	Defense		Defense	Defense	
Appropriation/Program	**Technical Assist.**	**Policy**	**RERF**	**NEPA**	**Mgmt. &Admin.**	**Program Direction**	**TOTAL**	**Oversight**	**Health Studies**	**Program Direction**	**TOTAL**	**Total EH**
Energy, Supply, Research & Develop												
Environment, Safety & Health Activities	6,500	225		3,500	2,965	1,000	14,190					14,190
Worker Health & Safety	17,611	900			4,500	2,000	25,011					25,011
Health Studies			18,000		3,991	3,037	25,028		13,349		13,349	38,377
Oversight	6,900				1,678	2,000	10,578		150	50	200	10,778
Planning & Administration						31,860	31,860					31,860
Nuclear Safety Policy	3,408	1,435			11,567	770	17,180					17,180
Working Capital Fund Adjustment						4,446	4,446					4,446
Subtotal Energy Supply	34,419	2,560	18,000	3,500	24,701	45,113	128,293		13,499	50	13,549	141,842
Defense Environment Restoration												
Dose Reconstruction									9,950		9,950	9,950
Other Defense Activities												
Security Evaluations								11,523		3,937	15,460	15,460
Nuclear Safety								6,226	9,100	6,353	21,679	21,679
Subtotal Other Defense								17,749	9,100	10,290	37,139	37,139
Weapons Activities												
Dose Reconstruction									2,888		2,888	2,888
Marshall Islands									6,330	470	6,800	6,800
Representative to the DNFSB								551			551	551
Subtotal Weapons Activities								551	9,218	470	10,239	10,239
Subtotal EH	**34,419**	**2,560**	**18,000**	**3,500**	**24,701**	**45,113**	**128,293**	**18,300**	**41,767**	**10,810**	**70,877**	**199,170**
Prior Year Balances												**-6,600**
Total EH	**34,419**	**2,560**	**18,000**	**3,500**	**24,701**	**45,113**	**128,293**	**18,300**	**41,767**	**10,810**	**70,877**	**192,570**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF ENVIRONMENT, SAFETY AND HEALTH (EH)
(dollars in thousands)

FY 1996 COMPARABILITY MATRIX

CURRENT STRUCTURE

	Non-Defense					Non-Defense	Non-Defense	Defense		Defense	Defense	
Appropriation/Program	**Technical Assist.**	**Policy**	**RERF**	**NEPA**	**Mgmt. &Admin.**	**Program Direction**	**TOTAL**	**Oversight**	**Health Studies**	**Program Direction**	**TOTAL**	**Total EH**
Energy, Supply, Research & Develop												
Environment, Safety & Health Activities	3,285	220		3,410			6,915					6,915
Worker Health & Safety	18,116	487			10,047		28,650					28,650
Health Studies			20,000				20,000		9,332		9,332	29,332
Oversight	7,516				4,850		12,366					12,366
Planning & Administration					2,859	34,811	37,670					37,670
Nuclear Safety Policy	5,263	1,893			6,344		13,500					13,500
Working Capital Fund Adjustment						4,504	4,504					4,504
Subtotal Energy Supply	34,180	2,600	20,000	3,410	24,100	39,315	123,605		9,332		9,332	132,937
Defense Environment Restoration												
Dose Reconstruction									17,250		17,250	17,250
Other Defense Activities												
Security Evaluations								10,688		4,019	14,707	14,707
Nuclear Safety								4,857	5,375	7,447	17,679	17,679
Subtotal Other Defense								15,545	5,375	11,466	32,386	32,386
Weapons Activities												
Dose Reconstruction									2,888		2,888	2,888
Marshall Islands									6,800		6,800	6,800
Representative to the DNFSB								700		300	1,000	1,000
Subtotal Weapons Activities								700	9,688	300	10,688	10,688
Subtotal EH	34,180	2,600	20,000	3,410	24,100	39,315	123,605	16,245	41,645	11,766	69,656	193,261
Prior Year Balances												-4,396
Total EH	**34,180**	**2,600**	**20,000**	**3,410**	**24,100**	**39,315**	**123,605**	**16,245**	**41,645**	**11,766**	**69,656**	**188,865**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF ENVIRONMENT, SAFETY AND HEALTH (EH)
(dollars in thousands)

FY 1997 COMPARABILITY MATRIX

CURRENT STRUCTURE

	Non Defense					Non-Defense	Non-Defense	Defense		Defense	Defense	
Appropriation/Program	Technical Assist.	Policy	RERF	NEPA	Mgmt. & Admin.	Program Direction	TOTAL	Oversight	Health Studies	Program Direction	TOTAL	Total EH
Energy, Supply, Research & Develop												
Environment, Safety & Health Activities	29,220	2,340	15,000	3,500	23,100	39,046	112,206					112,206
Worker Health & Safety												
Health Studies												
Oversight												
Planning & Administration												
Nuclear Safety Policy												
Subtotal Energy Supply	29,220	2,340	15,000	3,500	23,100	39,046	112,206					112,206
Defense Environment Restoration												
Dose Reconstruction												
Other Defense Activities												
Security Evaluations												
Nuclear Safety												
Environment, Safety & Health Activities								14,526	38,568	10,706	63,800	63,800
Subtotal Other Defense								14,526	38,568	10,706	63,800	63,800
Weapons Activities												
Dose Reconstruction												
Marshall Islands												
Representative to the DNFSB												
Subtotal Weapons Activities												
Total EH	**29,220**	**2,340**	**15,000**	**3,500**	**23,100**	**39,046**	**112,206**	**14,526**	**38,568**	**10,706**	**63,800**	**176,006**

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Tabular dollars in thousands)
OTHER DEFENSE ACTIVITIES
ENVIRONMENT, SAFETY AND HEALTH
EH DEFENSE
PROGRAM MISSION

The Office of Environment, Safety and Health (EH) is a corporate resource that provides leadership and Departmental management excellence to protect the workers, the public, and the environment. This commitment to excellence is demonstrated by striving for continuous improvement to develop meaningful programs and policies; conducting independent oversight of environment, safety, health, and safeguards and security performance; and providing technical assistance, resources, and information sharing. Open communication, participation, and performance feedback on EH activities from affected parties are integral to the EH's success. The hallmark and highest priority of all EH activities is daily excellence in the protection of the workers, the public, and the environment. Program Direction is a separate decision unit in the Other Defense Activities appropriation. As part of the reorganization of the Office of Environment, Safety and Health, operations were streamlined along business function activities. In order to streamline budget activities, the Other Defense Activities (which prior activities were Security Evaluations and Nuclear Safety that both previously were predominantly oversight functions) now also encompass Weapon Activities (Dose Reconstruction, Marshall Islands and Representative to the Defense Nuclear Facilities Safety Board); Defense Environment Restoration (Dose Reconstruction); and Energy Supply, Research and Development (Health Studies and Oversight). These activities are divided along business lines which are Oversight and Health Studies. The activities performed by these business lines are as follows:

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OVERSIGHT: These activities provide information and analysis needed to ensure that the Department of Energy (DOE) and contractor management, the public, the Secretary of Energy, and the Assistant Secretary for EH have an accurate, comprehensive understanding of the effectiveness, vulnerabilities, and trends of the Department's environment, safety, and health, and safeguards and security policies and programs. These activities include the Site Residents Program, Assessments, Accident Investigation, Analysis, Price-Anderson Enforcement, and the Departmental Representative to the Defense Nuclear Facilities Safety Board (DNFSB).

HEALTH STUDIES: These activities include International Health Programs, such as Marshall Islands; Occupational Medicine focussing on medical surveillances; Epidemiologic Studies, which encompasses the State Health Agreement program; and a Memorandum of Understanding with the Department of Health and Human Services.

The **GOALS** of the EH **Defense** programs are to continually provide improved Department-wide environment, safety, and health support through:

- Having consistent, multidisciplinary credible oversight processes for appraising the effectiveness of environment, safety, health, and safeguards and security programs. Coordinate processes with field and program offices. Report appraisal results to DOE senior management, the Congress, and the DNFSB.

- Using epidemiologic studies to examine possible linkages between exposures or conditions at DOE sites and adverse health effects among groups of workers and offsite populations, and to oversee epidemiologic studies on the health of population groups in the Marshall Islands who have been exposed to ionizing radiation.

- Promoting high quality workplace medical services to DOE and contractor employees.

The **OBJECTIVES** related to these goals are:

- Identify, prioritize, and conduct inspections and special studies to determine the effectiveness of the Department's environment, safety, health, and safeguards and security policies and programs by providing coordinated and consistent independent oversight to customers.

- Report appraisal results to DOE senior management, the Congress, and the DNFSB.

- Disseminate lessons learned and exemplary practices to enhance performance and safety.

- Support periodic and systematic collection, analysis, and sharing of data about workers' health and workplace conditions, with the aim of detecting and preventing adverse effects of workplace exposures while assisting in the determination of the health impacts of DOE operations on workers and host communities.

- Investigate the effects of radiation exposure on the exposed populations in the Marshall Islands.

- Improve the performance and effectiveness of the Department's workforce and contractor employees in matters related to environment, safety, health, and safeguards and security.

- Investigate the effects of radiation exposure on the children exposed by the Chernobyl accident and exposed populations in the Former Soviet Union and Eastern Europe.

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PERFORMANCE MEASURES: Performance measures related to environment, safety, and health activities are primarily qualitative rather than quantitative. However, some quantitative performance measures are:

- Downward trends in previously identified issues that lead to environmental releases, worker injury, and illness.
- Increased customer satisfaction with oversight priorities, timeliness, consistency, and quality.
- Significant environment, safety, health, and safeguards and security issues identified at one site do not recur at that site or other sites.
- At-risk worker populations are identified and appropriate mitigation measures are employed to avoid adverse health outcomes that include implementation of a program that establishes systematic linkages between job/task analyses, exposure assessments, medical monitoring, and epidemiological analysis.
- Initiation of investigation of health concerns is reduced to within 30 days of identification.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS: Significant accomplishments and program shifts are defined within the respective business line descriptions that follow.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY AND HEALTH
PROGRAM FUNDING PROFILE, EH DEFENSE[1]
(Tabular dollars in thousands)

Sub-Programs	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Oversight	$18,300	$0	$ 16,245	$16,245	$14,526
Health Studies	41,767	0	41,645	41,645	38,568
Subtotal	60,067	0	57,890	57,890	53,094
Adjustment	- 6,600	0	0	0	0
Total Defense	$53,467	$0	$57,890	$57,890	$53,094

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[1]The comparable appropriation dollars come from the Defense Environment Restoration ($17,250,000), Other Defense Activities($20,920,000), and the Weapons Activities ($10,388,000) appropriations as well as a net shift of $9,332,000 in FY 1996 from Energy Supply, Research and Development. In FY 1995, the comparable appropriation dollars come from the Defense Environment Restoration ($9,950,000), Other Defense Activities ($26,849,000), Weapons Activities ($9,769,000) and a net shift of $13,499,000 from Energy Supply, Research and Development. The FY 1995 and FY 1996 columns are displayed in the new structure for comparison purposes only; the FY 1995 and FY 1996 programs are being implemented as appropriated.

Authorizations:
P.L. 83-703, "Atomic Energy Act of 1954"
P.L. 100-408, "Price Anderson Amendments Act of 1988"

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY, AND HEALTH
PROGRAM FUNDING BY SITE, EH DEFENSE[2]
(Dollars in thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Sandia National Laboratories	$ 65	$0	$ 65	$65	$65
Los Alamos National Laboratory	25	0	25	25	25
Brookhaven National Laboratory	41	0	100	100	100
Argonne National Laboratory	1,467	0	1,430	1,430	1,467
Idaho National Engineering Laboratory	423	0	160	160	160
Oak Ridge Institute for Science & Ed.	60	0	30	30	30
Oak Ridge National Laboratory	553	0	250	250	250
Pacific Northwest Laboratories	9,901	0	8,793	8,793	9,127
Lawrence Berkeley Laboratory	33	0	0	0	0
Lawrence Livermore Laboratory	1,328	0	1,295	1,295	1,328
Westinghouse Hanford	135	0	125	125	135
HQs	46,036	0	45,617	45,617	40,407
Subtotal	60,067	0	57,890	57,890	53,094
Adjustment	-6,600	0	0	0	0
TOTAL	$53,467	$0	$57,890	$57,890	$53,094

[2] The FY 1995 and FY 1996 columns are displayed in the new budget structure for comparison purposes only; the FY 1995 and FY 1996 programs are being implemented as appropriated.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY AND HEALTH
PROGRAM OBJECT CLASS SUMMARY, EH DEFENSE[3]
(dollars in thousands)

		FY 1995 Comparable	FY 1995 Non-comparable	FY 1996 Comparable	FY 1996 Non-comparable	FY 1997 Budget
25.1	Advisory and assistance services	$28,984	$0	$11,348	$0	$10,271
25.2	Other services	9,340	0	22,913	0	9,905
25.4	Operation of GOCOs	0	0	0	0	0
25.5	Research and development contracts	19,020	0	26,352	0	32,918
	Subtotal	57,344	0	60,613	0	53,094
	Use of Prior Year Balance	(6,600)	0	0	0	0
	Unobligated balance avail., start of year	0	0	(2,723)	0	0
	Unobligated balance avail., end of year	2,723	0	0	0	0
99.9	TOTAL	$53,467	$0	$57,890	$0	$53,094

[3]EH Defense is a new decision unit as a result of the EH Budget Structure Changes. See the Environment, Safety and Health Executive Budget Summary for further details and comparability matrixes.

PROGRAM PERFORMANCE SUMMARY:

Mission Supporting Goals and Objectives

The mission of the oversight program is to provide the information and analysis needed to ensure that the Secretary of Energy, Assistant Secretary for Environment, Safety and Health, Department and contractor management, Congress, stakeholders, and the public have an accurate and comprehensive understanding of the effectiveness, vulnerabilities, and trends of the Department's environment, safety, health, and safeguards and security policies and programs. The major goal is to assure that Federal managers are held accountable for environment, safety, and health performance. The safety management template states that line managers are responsible and accountable for safety; comprehensive requirements exist, are executed, and are appropriate; and competence is commensurate with responsibilities.

Site Residents provide real time information on line worker safety and health performance and verify closure and/or performance of DOE's environment, safety, health, and safeguards and security responsibilities.

Assessments provide independent safety management evaluations of environment, safety, health, and safeguards and security programs across the complex.

Accident Investigation Program has been re-engineered to reduce contractor dollars, increase effectiveness, and streamline the accident investigation process.

Analysis utilizes site profile data as a foundation for setting priorities, tracking progress, and focusing inspections.

Enforcement provides oversight of the Price-Anderson Enforcement activities of the Department.

Defense Nuclear Facilities Safety Board (DNFSB) provides the Department liaison representation to the DNFSB.

Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997 Request	$ Change	%Change
Site Residents	$1,500	$1,250	$1,100	-$150	12%
Assessments	11,900	11,100	10,851	-249	2%
Accident Investigation	700	495	400	-95	19%
Analysis	3,000	2,400	1,400	-1,000	42%
Enforcement	649	300	275	-25	8%
DNFSB	551	700	500	-200	29%
Total Oversight	$18,300	$16,245	$14,526	-$1,719	11%

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Performance Summary

FY 1995 Accomplishments

- Restructured into an oversight organization evaluating the effectiveness of DOE's environment, safety, health, and safeguards and security programs by consolidating fragmented environment, safety, and health functions into a comprehensive oversight program and combining and reorienting two redundant on-site programs.
- Conducted environment, safety, and health comprehensive inspections at Rocky Flats, Idaho, and Savannah River and safeguards and security comprehensive inspections at Pantex, Sandia, and Nevada.
- Special Reviews conducted were the following: Suspect/Counterfeit Parts; Molten Salt Reactor; Radiation Protection; Emergency Management Operations; Review of Radiological Incidents at Sandia National Laboratory; Occurrence Reporting Programs within the DOE; Safety in Safeguards and Security; Initial Review of Hoisting and Rigging Incidents; and Nuclear Related Equipment Review Department-wide.
- Developed and implemented a program that adds value and satisfies the requirements of external and internal constituents.
- Developed site profiles that provide a foundation for establishing priorities, tracking progress, and keeping inspection activities focused.
- Continued reduction in utilization of contractors, increased reliance on Federal staff.
- Conducted the Accident Investigation of the Rappelling Fatality at Savannah River.
- Performed follow-up by EH Residents targeting the most significant issues, and monitored line management effectiveness in resolving issues and identifying barriers to progress.
- Promoted continuous improvement in the Department's performance through value-added and cost recovery impact on field performance in meeting Departmental goals.
- Established and implemented a Price-Anderson Enforcement Coordination program in cooperation with the DOE Field and Program Offices at each DOE nuclear site; established a Noncompliance Reporting and Tracking System for nuclear safety enforcement; and issued DOE's enforcement guidance document on decision-making processes for Price-Anderson enforcement actions. Completed two major investigations at nuclear facilities (Pantex and Rocky Flats) involving multiple nuclear safety concerns and criticality issues.

FY 1996 Accomplishments (to date and planned)

- Implemented technical qualifications program.
- Institutionalize the oversight process and implement a program that transcends individuals and becomes a vital and ongoing part of the operation of the Department over the long term.
- Verify system utilization for trending and analysis of data to minimize oversight visits.
- Provide credible and effective oversight through the application of a safety management template and extensive as well as focused inspections forming a fully functional program.
- Continue reduction in contractor utilization and increase reliance on Federal staff.
- Validate the site profiles (detailed analysis of site specific hazards) of all DOE major facilities.
- Implement inspection of the Departmental Standards Committee necessary and sufficient process.
- Implement analytic framework or "template" that clearly articulates the principles and operational elements of sound environment, safety and health management programs.

FY 1997 Planned Accomplishments

- Increase safety by promoting effective safety management and identifying areas that require improvement, as well as continually focusing on line management's performance.
- Continue reduction in contractor utilization and increase reliance on Federal staff.
- Perform follow-up by EH Residents on identified problems, provide near real-time updates on progress toward correcting the problems, and update the site profiles on a regular basis. ($1.1 million)
- Provide credible and effective oversight through a fully functional program of analysis and inspections. The program should be making significant progress toward making safety management a part of the DOE culture. Through indepth analysis, Oversight will be able to teach and track safety issues, providing managers with practical, real time information. Ultimately, with a clear understanding of safety issues, DOE will add value and increase productivity in a safer environment. ($12.2 million)
- Continue streamlining the accident investigation program. ($0.4 million)

- Provide representative liaison with the DNFSB. ($0.5 million)

- Provide enforcement of Price-Anderson activities. ($0.3 million)

Explanation of Funding Changes FY 1996 to FY 1997

- Reduction and streamlining of contractor utilization to achieve cost savings of $1.7 million. Improved productivity from Federal workforce.

- Reorganization of all independent oversight activities into one organization eliminated redundant oversight of the field from Headquarters, and, therefore, provided cost savings to the field on the impact of these activities. Refocused oversight providing practical, timely information to managers.

PROGRAM PERFORMANCE SUMMARY:

Mission Supporting Goals and Objectives

The Health Studies program promotes the health and safety of DOE's workers and communities surrounding Department sites, and supports research to understand the effects of radiation on humans. It is comprised of three programs: International Health Studies, Occupational Medicine, and Epidemiologic Studies. The results of the research supported in the International Health Studies area provide the technical basis for developing radiation protection standards for the public and the environment based on human exposures to varying levels of ionizing radiation. Further, the Marshall Islands Program supports direct medical surveillance and medical care to radiation-exposed populations. In the Occupational Medicine area, the Health Studies Program provides the Department's occupational medicine clinics with tools such as a paperless system that automatically links medical, exposure and job information into one record per worker. This system and other such tools are developed to assist these clinics in identifying and tracking occupationally-related health effects among worker populations and identifying opportunities to initiate preventive or mitigative measures. In the Epidemiologic Studies area, worker populations and communities surrounding DOE sites are studied to identify health impacts associated with the operation of DOE facilities and provide information to affected populations as well as DOE line management. These studies are primarily conducted in partnership with selected State Health Departments under DOE's State Health Agreement program or in conjunction with the Centers for Disease Control and Prevention pursuant to a Memorandum of Understanding with the Department of Health and Human Services.

Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997 Request	$ Change	% Change
International Programs					
- Marshall Islands	$6,800	$6,800	$6,800	0	0%
- Other Programs	3,745	4,017	3,000	-1,017	25%
Occupational Medicine	6,200	6,095	6,000	-95	2%
Epidemiologic Studies	25,022	24,733	22,768	-1,965	8%
Total Health Studies Program	$41,767	$41,645	$38,568	$-3,077	7%

Performance Summary

FY 1995 Accomplishments

- Completed epidemiologic investigations of several worker and community health concerns; continued epidemiologic surveillance of DOE workers at ten sites and published findings in annual epidemiologic surveillance reports; provided briefing and written materials to stakeholders on completed studies.

- In the Marshall Islands, conducted two medical missions providing medical surveillance for over 300 merciless patients and conducted two environmental missions entailing collection and analysis of soil and vegetation samples, environmental half-life and dose reduction mitigation studies at two atolls.

- Completed a Memorandum of Understanding (MOU) with the National Institute for Occupational Safety and Health (NIOSH) in response to the requirements of Section 3162 of the Defense Authorization Act of 1993.

- Initiated grant program through NIOSH to support research and innovation in exposure assessment and medical studies.

- Identified, located, and provided medical examinations to 2,000 current and former DOE employees at risk for chronic beryllium disease and 200 former employees with high lifetime exposures to ionizing radiation.

- Established pilot medical surveillance information system, used by occupational medicine physicians to link clinical findings to working conditions resulting in identification of potential occupational health concerns that are investigated and resolved to protect and improve the health of workers.

- Established new grants program to support research to develop and evaluate surveillance programs that will increase knowledge of workplace hazards and the adverse outcomes of exposure to hazards.

- Initiated pilot studies on populations exposed to radiation following the Chernobyl accident and populations living in the South Ural region of the Russian Federation. Chernobyl-related studies included examination of the incidence of thyroid cancer in children and leukemia and cataracts in cleanup workers.

FY 1996 Accomplishments (to date and planned)

- Continue epidemiologic studies conducted under the MOU with the Department of Health and Human Services.
- Conduct two additional medical missions, two additional environmental missions, and one whole body counting mission in the Marshall Islands.
- Continue epidemiologic surveillance of workforce health and safety, identify emerging health and safety issues requiring evaluation, and initiate epidemiologic studies.
- Provide medical examinations to 1,500 to 2,000 current and former DOE workers at risk for occupational disease, initiate epidemiologic investigations based on findings from epidemiologic surveillance, and enhance communication with workers, community residents, and other stakeholders.
- Complete first phase of U.S.-Russian pilot studies on workers at the Mayak facility and populations living in the South Ural region for incidence of cancer mortality.
- Complete development of medical surveillance information system.
- Continue pilot studies on populations exposed to radiation.

FY 1997 Planned Accomplishments

- Continue two medical missions, two environmental missions, and one whole body counting mission in the Marshall Islands. ($6.8 million)
- Continue U.S.-Russian collaborative efforts to full-scale cohort studies in the South Ural region and begin feasibility studies in other contaminated regions. ($2.7 million)
- Analyze clinical findings of working conditions across multiple sites, and identify and investigate potential occupational health concerns. Provide medical examinations for 2,000 to 3,000 current and former employees at risk for occupational disease at DOE facilities. Plan and implement expanded medical surveillance across DOE sites. ($4.5 million)
- Support commitments under State Health Agreements whereby the Department provides grants to states hosting DOE facilities to determine the impact of operations of those facilities on the health of the surrounding communities. ($5.0 million)

- Continue epidemiological surveillance of DOE workers at ten sites and publish findings in annual epidemiological surveillance reports; provide briefings and written materials to stakeholders on completed studies. ($2.0 million)

- Continue grant program through NIOSH to support research and innovation in exposure assessment and medical studies.($1.5 million)

- Continue epidemiologic studies conducted under the Memorandum of Understanding with the Department of Health and Human Services. ($14.77 million)

- Continue efforts to evaluate biokinetic models for deposition and dosimetry for transuranics in humans to improve models and occupational radiation standards. ($1.0 million)

- Continue United States participation in Project Indalo. ($0.3 million)

Explanation of Funding Changes FY 1996 to FY 1997

- Reduction in epidemiologic studies and State Health Agreements reflects current budget constraints. ($-1.9 million)

- Reduce support for Chernobyl and Russian Federation based on budget constraints. ($-1.0 million)

PROGRAM PERFORMANCE SUMMARY:

Mission Supporting Goals and Objectives

Program Direction provides employees salaries, benefits, travel, and any other personnel benefits to ensure that all operations are conducted in the most efficient; and effective manner consistent with the EH policies.

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FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY AND HEALTH
PROGRAM FUNDING PROFILE, EH DEFENSE[4]
PROGRAM DIRECTION
(Tabular dollars in thousands)

Sub-Programs	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Program Direction	$10,290	0	$11,766	$11,766	$10,706
Capital Equipment	520	0	0	0	0
Total Defense	$10,810	$ 0	$11,766	$11,766	$10,706
FTEs	105	0	117	117	106

[4]The comparable appropriation dollars come from Other Defense Activities ($11,466,000) and the Weapons Activities ($300,000) appropriations in FY 1996.
Authorizations
P.L. 83-703, "Atomic Energy Act of 1954"
P.L. 100-408, "Price Anderson Amendments Act of 1988"

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY, AND HEALTH
PROGRAM FUNDING BY SITE, EH DEFENSE
PROGRAM DIRECTION
(Dollars in thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriations	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
HQs	$ 10,290	$0	$11,766	$11,766	$10,706
Capital Equipment	520	0	0	0	0
Subtotal	10,810	0	11,766	11,766	10,706
Adjustment	0	0	0	0	0
TOTAL	$10,810	$0	$11,766	$11,766	$10,706

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY AND HEALTH
PROGRAM OBJECT CLASS SUMMARY, EH DEFENSE
PROGRAM DIRECTION
(dollars in thousands)

		FY 1995 Comparable	FY 1995 Non-comparable	FY 1996 Comparable	FY 1996 Non-comparable	FY 1997 Budget
Personnel Compensation:						
11.1	Full-time permanent	$ 7,128	0	$8,241	0	$7,691
11.3	Other than full-time permanent	274	0	275	0	210
11.5	Other personnel compensation	242	0	250	0	200
11.9	Total personnel compensation	7,644	0	8,766	0	8,101
12.1	Civilian personnel benefits	1,391	0	1,685	0	1,515
13.0	Benefits for former personnel	25	0	25	0	25
21.0	Travel and transportation of persons	1,105	0	1,175	0	1,000
22.0	Transportation of things	0	0	0	0	0
23.3	Communications, utilities, and misc.	0	0	0	0	0
24.0	Printing and reproduction	110	0	100	0	50
26.0	Supplies and Materials	15	0	15	0	15
31.0	Equipment	520	0	0	0	0
	Subtotal	10,810	0	11,766	0	10,706
	Adjustment	0	0	0	0	0
99.9	TOTAL	$10,810	0	$11,766	0	$10,706
	Use of Prior Year Balances	0	0	0	0	0
	Unobligated Balance avail., start of year	0	0	0	0	0
	Unobligated Balance avail., end of year	0	0	0	0	0
		$ 0	$ 0	$ 0	$ 0	$ 0

Funding Schedule

Headquarters	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salaries, Benefits	$ 9,060	$ 0	$10,476	$ 10,476	$ 9,641
Travel	1,105	0	1,175	1,175	1,000
Support	125	0	115	115	65
Capital Equipment	520	0	0	0	0
Program Direction Total	$10,810	$0	$11,766[5]	$11,766	$10,706
FTEs	105	0	117	117	106
Average FTE	98.0[6]	0	100.6	100.6	101

Performance Summary

FY 1995 Measurable Performance Activities

- Conducted independent oversight evaluations and special studies of the effectiveness of environment, safety, health, and safeguards and security policies and programs across the DOE complex.
- Continued reduction in utilization of contractors, increased reliance on Federal staff.
- Conducted health studies of workforce and community concerns.
- Developed technical qualifications program.

[5]Original Defense appropriations had program direction incorporated in the Other Defense Activities and Weapons Activities. These changes are highlighted in the FY 1996 Comparability Matrix included in the Environment, Safety and Health Executive Budget Summary.

[6]Capital equipment is not incorporated in the weighted FTE average.

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FY 1996 Measurable Performance Activities

- Implement technical qualifications program.
- Continue reduction in contractor utilization.
- Continue to provide the Secretary and DOE managers with an important tool--independent and unbiased view of how well the Department is doing in managing environment, safety, health, and safeguards and security programs.
- Conduct health studies of workforce and community concerns.
- Implement state health agreements.
- Continue to work with line management to eliminate redundant functions.

FY 1997 Planned Accomplishments

- Continue reduction in contractor utilization consistent with strategic alignment initiative.
- Increase safety by identifying areas that require improvement.
- Continue to provide the Secretary and DOE managers with an important tool--independent and unbiased view of how well they are doing in managing environment, safety, health, and safeguards and security.
- Conduct health studies to protect the health of all DOE workers as well as the health of the communities that have hosted DOE sites.
- Continue technical qualification program.

Explanation of Funding Changes FY 1996 to FY 1997

Continue reduction and streamlining of Federal staff. Net reductions are 11 FTEs and $1,060,000.

Explanation of Average FTE Costs

The full time equivalent fully loaded cost includes salaries, benefits (such as employees' retirement, health and life insurance, accident compensation, Federal Insurance Contribution Act taxes, Federal Retirement Thrift Savings Plan and relocation expenses), travel, materials and supplies.

WORKER AND COMMUNITY TRANSITION AND PROGRAM DIRECTION

PROGRAM MISSION

The Office of Worker and Community Transition was formed in September 1994 to assure the fair treatment of workers and communities affected by changing Department of Energy missions primarily through the Worker and Community Transition program in accordance with Section 3161 of the Defense Authorization Act of 1993. This program also provides for the personal and contractual services for all federal management , and administrative personnel to carry out the Worker and Community Transition mission including (related costs such as space , materials , utility , supplies, communication and building maintenance) at DOE Headquarters. Albuquerque, Oak Ridge, Oakland, Richland Operations Offices and Pittsburgh Energy Technology Center.

The GOAL of the Worker and Community Transition program is to:

Mitigate the impacts on workers and communities from contractor work force restructuring at defense sites, and assist community planning for defense conversion, while humanely and cost-effectively managing the transition to the reduced work force that will better meet ongoing mission requirements.

The OBJECTIVES related to this goal are:

1. Restructure the Department Of Energy contractor work force - establish work force restructuring policy, and coordinate, implement and evaluate the outcomes of work force restructuring plans consistent with section 3161 of the National Defense Authorization Act for Fiscal Year 1993, the contract reform initiative and other Departmental policies.

2. Provide benefits to affected workers such as at least 120 days advanced notification, incentives or other options to minimize involuntary layoffs, retraining for environmental cleanup and rehiring preference to displaced workers where practicable, relocation assistance, and outplacement assistance; and provide local community impact assistance.

The OBJECTIVES related to the goal are: (Continued.)

3. Manage contractor labor relations - establish policy for contractor labor relations, oversee the collective bargaining process, and assist field organizations in labor/management relations.

4. Establish and facilitate implementation of a work force planning process - develop a process and tools for projecting contractor work force requirements at each site on the basis of mission, budget estimates, and work force skills.

5. Provide fair treatment to workers who must be displaced throughout the Department, and meet site-specific needs within budget constraints.

6. Assist community transition - develop policies for community transition, and assist communities affected by Departmental changes by facilitating their economic development activities.

PERFORMANCE MEASURES:

1. Number of contractor work force separations accomplished and associated recurring and accumulated cost savings.

2. Percentage of voluntary separations.

3. Number of involuntarily separated workers with hiring preference who are rehired by DOE contractors or subcontractors.

4. The level of satisfaction from displaced workers with benefits and services provided, and their success in securing desired career transition, based on survey results.

5. Success in achieving these reductions while maintaining critical activities through retention of a proper skill mix.

6. Number of collective bargaining agreements successfully completed and successful resolution of labor-management disputes.

7. Number of new jobs, and prospective new jobs, created as a result of economic development activities supported by the program.

8. Stakeholder satisfaction with program based on surveys and other feedback.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS

- The program successfully managed the reduction of over 12,000 contractor personnel between the end of fiscal year 1992 and 1994. From the beginning of FY 1995 to February 1996, over 18,000 prime contractor, and over 3,000 subcontractors, positions have been eliminated in the current fiscal year.

- Over 70% of separations to date have been voluntary, with an average separation cost of approximately $19,000 per position.

- Based on average fully loaded cost per employee, total annual saving to date for the 30,000 prime contractor positions eliminated is in excess of $3 billion.

WORKER AND COMMUNITY TRANSITION
PROGRAM FUNDING PROFILE
(Dollars in thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Worker and Community Transition	$119,876	$82,500	-5,141	$77,359	$62,659
Program Direction	4,268	0	4,329	4,329	4,341
Subtotal	124,144	82,500	-812	81,688	67,000
Adjustment	-818 a/	0	0	0	0
Total, W&CT	$123,326	$82,500	$-812	$81,688	$67,000

a/ Use of prior year balances
b/ Reprogramming of $1 million (96-R-13) to Safeguards and Security Declassification Program, Approved February 9, 1996. and Program Direction which became a new decision unit.

DEPARTMENT OF ENERGY
WORKER AND COMMUNITY TRANSITION
(Dollars in thousands)

Field Offices/Sites	FY 1995 Comparable Adjusted	FY 1996 Original Appropriation	FY 1996 Real & Comparable Adjustments		FY 1996 Comparable Adjusted	FY 1997 Budget Request
Albuquerque	$31,871	$21,649	$ 0		$21,649	$ 0
Bartlesville	150	0	0		0	0
Denver	82	0	0		0	0
Headquarters	2,115	41,673	-812	a/	40,861	67,000
Idaho	325	5,000	0		5,000	0
Oakland	387	735	0		735	0
Nevada	16,587	6,500	0		6,500	0
Ohio	11,400	1,100	0		1,100	0
Oak Ridge	2,932	428	0		428	0
Pittsburgh	250	225	0		225	0
Rocky Flats	23,900	5,100	0		5,100	0
Richland	145	90	0		90	0
Savannah River	34,000	0	0		0	0
Subtotal	124,144	82,500	-812		81,688	67,000
Adjustments	-818	0	0		0	0
Total	$123,326	$82,500	$-812		$81,688	$67,000

a/ Reprogramming of $1 million (96-R-13) to Safeguards and Security Declassification Program Approved February 9, 1996 and increase of $188 thousand for 1996 working capital.

WORKER AND COMMUNITY TRANSITION
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995	FY 1996	FY 1997
Compensation:				
11.1	Full-time permanent	$1,900	$1,550	$1,550
11.3	Communications, utilities, and miscellaneous charges	4	100	100
11.5	Other personnel compensation	103	416	416
11.9	Total Personnel Compensation	$2,007	$2,066	$2,066
21.0	Travel and transportation of persons	100	75	75
23.2	Communications, utilities, and miscellaneous charges			9
24.0	Printing and reproduction	0	0	17
25.2	Other services	1,976	2,000	2,000
25.4	Operation and maintenance of facilities	119,058	77,359	62,830
26.0	Supplies and Materials	0	0	3
99.9	Total Obligation	$123,141	$81,500	$67,000
	Comparability Adjustments	185	+188	0
		$123,326	$81,688	$67,000

I. Mission Supporting Goals and Objectives

This activity establishes policy for, coordinates implementation of, and evaluates the outcomes of work force restructuring consistent with section 3161 of the National Defense Authorization Act for Fiscal Year 1993, the contract reform initiative and other Departmental policies. This involves providing guidance to DOE field management for developing work force restructuring plans, assuring adequate advance notification for planned reductions; reviewing and approving voluntary incentive programs to encourage workers with skills excess to ongoing requirements to separate; reviewing draft work force restructuring plans prior to circulation for stakeholder review and comment, approving necessary involuntary separations, and submitting final work force restructuring plans to the Congress. Based on Secretarial direction, work force restructuring plans are developed for any reduction that exceeds a threshold of 100 at any site, including those not specifically covered by section 3161, in a single year. This activity assures that necessary work force reductions are conducted in a manner that encourages voluntary separations, assists displaced workers in securing new employment, and provides basic benefits for a reasonable transition period. The activity makes critical priority decisions to match these objectives with fiscal constraints.

This function assures that contractor work force restructuring is conducted in a manner that assures that critical skills for ongoing mission requirements are retained, enhances efficiency, and accurately forecasts mission performance implications of potential future budget reductions. This goal is being achieved through the development of a uniform work force planning data base for the Departmental contractor employment and an integrated work force planning process. It supports the Departmental objective of realigning efforts to areas of maximum efficiency without jeopardizing critical task assignments.

This function establishes policy for contractor labor relations, oversees the collective bargaining process, and assists field organizations in labor/management relations. These activities promote an improved working relationship between labor and management in the Department's contractor work force. The result is uniform application of relevant labor standards, increased productivity, enhanced safety and security, and a reduction in disruptive labor disputes. The function also helps, to implement the contract reform initiative, outsourcing policy and other elements of strategic alignment.

Section 3161 of the FY 1993 Defense Authorization Act establishes an objective for the Department to "provide local impact assistance to communities that are affected by the restructuring plan" and to coordinate such assistance with other federal programs. In particular, the Department, in close cooperation with parties in the affected communities, seeks to utilize excess Departmental assets to help create economic activity and produce replacement employment for workers displaced by work force restructuring plans. This activity also provides an informational clearinghouse to assist local community economic development planning; identifies potential sources of both public and private funding outside the Department, and on a high priority basis, funds projects that have a high probability of producing positive results for displace workers and their affected communities.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$Changes	% Change
Worker and Community Transition	$119,876	$77,359	$62,659	$-14,700	-19%

III. Performance Summary:

FY 1995 Accomplishments:

- Approved work force restructuring actions resulted in the separation of 14,267 prime contractor and 2,507 subcontractor positions. Prime contractor separations include 2,866 early retirements, 6,832 voluntary separations and 3,010 involuntary separations. Net attrition accounted for an additional reduction of 1,559.

- Coordinated funding support for twenty three final work force restructuring plans at thirteen sites totaling $517 million, which resulted in an average of $19,000 per separated employee since FY 1993.

- Provided $31 million in community transition funding in six communities.

- Approved community transition projects which have created approximately 310 jobs to date, with an additional 700 jobs projected by the end of FY 1996, and 1,900 jobs by the end of FY 1997.

FY 1996 and FY 1997 Accomplishments

- Continued review and approval of work force restructuring actions resulting in over 4,000 contractors separations through February 1996, as well as additional separations through the remainder of the FY.

- Currently forecast budget levels and continued steps to improve the operational effectiveness of the Department indicates that requirement for work force restructuring will occur in FY 1997. The Office is working with Field Operations to define the work force plans to define the level of restructuring required.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OTHER DEFENSE ACTIVITIES
WORKER AND COMMUNITY TRANSITION
PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities:

Worker and Community Transition (WT) Program Direction budget provides funds for all Federal personnel-related expenses, contractual services, which support Federal staff at Headquarters Office. Program direction provides overall direction and administrative support to ensure that all operations are conducted in the most efficient manner. This program also provides for the personal and contractual services for all federal management, and administrative personnel to carry out the Worker and Community Transition mission including (related cost such as space, materials, utility, supplies, communication and building maintenance) at Department of Energy Headquarters and Field Offices.

The GOAL of Program Direction is to provide a staff that can direct and manage Worker and Community Transition. These staff activities include strategic planning and policy development, integration of internal and external policies and directives, intra and interagency representation, technical direction and guidance of programs and projects, program assessment and internal controls, and management of fiscal and personnel resources in an effective and efficient manner.

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The OBJECTIVES related to this goal are:

- Provide management, direction, oversight and implementation of Worker and Community Transition.
- Provide highly qualified technical staff to oversee projects and sensitive operational programs.
- Provide staff to carry out our statutory requirements and elective directives.
- Provide professional development and achievement.

WORKER AND COMMUNITY TRANSITION PROGRAM DIRECTION
(Dollars in thousands)

II. Funding Table:

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comparable Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Albuquerque					
Support Services	$74	$144	0	$144	$0
Oakland					
Support Services	387	235	0	235	0
Pittsburgh Energy Technoloy Support					
Support Services	250	225	0	225	0
Oak Ridge					
Support Services	131	103	0	103	0
Richland					
Support Services	32	90	0	90	0
Headquarters					
Salary and Benefits	2,007	2,066	0	2,066	2,066
Travel	100	75	0	75	75
Support Services	1,102	1,203	0	1,203	2,000
Other Related Expenses	185	188	0	188	200
Total	3,395	3,532	0	3,532	4,341
Grand Total	$4,268	$4,329	0	4,329	$4,341

WORKER AND COMMUNITY TRANSITION PROGRAM DIRECTION
(Dollars in thousands)

Funding Table (Continued)	FY 1995 Comparable Adjusted	FY 1996 Original Appropriation	FY 1996 Real & Comparable Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Total Worker & Community Transition					
Salary and Benefits	$2,007	$0	+$2,066	$2,066	$2,066
Travel	100	0	+75	75	75
Support Services	1,976	0	+2,000	2,000	2,000
Other Related Expenses	185	0	+188	188	200
Grand Total	4,268	0	4,329	4,329	4,341
Full Time Equivalents	12	0	16	16	16
Average	355	0	270	270	270

a/ Reprogramming of $1 million (96-R-13) to Safeguards and Security Declassification Program, Approved February 9, 1996.

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III. Performance Summary:

Provide salaries, benefits, travel, training, contractual services, and other related costs for Worker and Community Transition Programs' Headquarters Federal employees necessary to meet mission requirements.

FY 1995 Accomplishments:

- Published interim planning guidance on April 5, 1995, for contractor work force restructing and prepared draft out-sourcing and preference in hiring policy which is currently in final review within the Department.

- Coordinated approval of eleven 120 day announcements, nine draft plans, five early retirement programs, thirteen voluntary separation programs, and ten involuntary separation programs.

- Supported and expanded the community college network program to retrain selected site workers for environmental restoration activities and provided field management manual on best out placement practices.

- Held three national stakeholder meetings to review and discuss work force restructuring issues with DOE field management: workers and their interested members of affected communities.

- Provided advice and support for strategic alignment efforts to develop plans to reduce the Department's federal work force.

- Initiated a two-phase process to develop a data base for work force planning. Phase I will incorporate pre-exiting reporting systems and will be implemented by September 1995.

  Established a Work Force Planning Committee including DOE headquarters offices, field offices, labor unions and contractor representatives and other stakeholder to identify data elements necessary to project future work force needs, and contracted with recognized national leaders in the area of performance metrics to establish quantitative measurement criteria.

- Reviewed objectives and parameters of contract negotiations for reasonable costs and compliance with labor policy and section 3161 at Savannah River, Mound, Argonne, Albuquerque and Los Alamos.

FY 1995 Accomplishments (Continued)

- Used oversight and intervention forestalled more serious conflicts in labor and management relations at Rocky Flats, Savannah River, Richland, Mound Argonne, Los Alamos and Fernald.
- Improved data bases and update tracking for labor settlements, bargaining calendar, and census recording to prepare for collective bargaining.
- Established an outreach process including community transition training programs for Department employees, monthly teleconferences, and published information on federal resources.
- Created process improvement teams to resolve barriers to procurement and financial assistance and to revise personal property guidelines.
- Accomplished asset reuse and saved landlord costs at Rocky Flats, Mound leases ($240,000 annual savings), sale of Pinellas Plant, ($37-52 million total savings), Nevada Test Site and Savannah River.
- Developed and maintained participation in other Departmental programs related to the community transition mission.

FY 1996 and FY 1997 Accomplishments:

- Published in the Federal Register revised in Interim Planning Guidance for Contractor Workforce Restructuring.
- Submitted to Congress Report on Work Force Restructuring Plans Completed during FY 1993 and FY 1994.
- Implement Phase II of the work force planning data base that will intergate the results of the planning process established by the Work Force Planning Committee and a comprehensive interactive data base of all contractor employment, including subcontractor workers and those involved in outsourcing, which is not currently available in any coherent form.
- Provide guidance, and assist DOE field management and contractors to incorporate the comprehensive work force planning system into all future work force restricting plans.
- Provided guidance for development, and competitive evaluation of community transition grant request.

FY 1996 and FY 1997 Accomplishments: (Continued)

- Continue oversight of collective bargaining process and assistance to field organization in labor/management relations, with particular focus on contract reform initiative, implementation of outsourcing policy and other elements of strategic alignment.
- Reviewed objectives and parameters of contract negotiations for reasonable costs and compliance with labor policy and section 3161 at Savannah River, Mound, Argonne, Albuquerque and Los Alamos.
- Improved data bases and update tracking for labor settlements, bargaining calendar, and census recording to prepare for collective bargaining.
- Promote large scale private sector reuse of real and personal property no longer needed by the Department.
- Provide expert economic development technical assistance to all interested communities participating in the program.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

Salaries and benefits remained the same from FY 1996 and FY 1997. This is due to the same number of Full Time Equivalent in both years.

V. Explanation of Average FTE Costs:

FY 1997 is the first year for a Program Direction Decision Unit for the Office of Worker and Community Transition. The fully loaded cost per FTE is is approximately $270,000. However, exclusion of support services contractor dollars reduces that cost to approximately $146,000 per Federal FTE.

The department is completing a major restructuring and contractor employment is expected to level out.

FISSILE MATERIALS DISPOSITION

PROGRAM MISSION

In the aftermath of the Cold War, significant quantities of weapons-usable fissile materials (primarily plutonium and highly enriched uranium) have become surplus to national defense needs both in the United States and Russia. In September 1993, the President announced a Nonproliferation and Export Control Policy which commits the United States to undertake a comprehensive approach to the growing accumulation of fissile material from dismantled nuclear weapons. In October 1994, the Secretary of Energy and the Congress took action to create a permanent Office of Fissile Materials Disposition to focus on this important national security mission -- long-term storage of all weapons-usable fissile materials and the disposition of surplus fissile materials. The Fissile Materials Disposition Program is responsible for the Department's technical and management activities to provide for the safe, secure, environmentally sound future long-term storage of all weapons-usable fissile materials and the disposition of fissile materials declared surplus to national defense needs. In March 1995, the President declared 200 metric tons (mt) of fissile material to be surplus to U.S. defense needs. The efforts undertaken by the Office of Fissile Materials Disposition will result in defining and implementing a path forward for the storage and disposition of these surplus fissile materials. The Program's efforts will provide the President the basis and flexibility to initiate implementation of plutonium disposition efforts either multilaterally or bilaterally through negotiations, or unilaterally as an example to Russia and other nations. The success of these efforts will directly contribute to enhancing cooperation with Russia and attaining reciprocal actions on the disposition of Russian plutonium.

The Program is completing technical, schedule, and cost analyses as well as environmental analyses, as required by the National Environmental Policy Act, to provide the basis for building public and political consensus and for making and implementing decisions on the long-term storage and disposition of surplus plutonium and highly enriched uranium. Early program efforts have resulted in narrowing down the list of technical alternatives for plutonium disposition in order to save time and money and position the U.S. to get on with the job of fissile materials disposition. The work in FY 1996 includes demonstrating the technology and systems for disassembling nuclear weapon pits in a near "zero-waste" manner and converting the plutonium to unclassified forms which are required for disposition technologies. Also in FY 1996, research and lab tests are planned for mixed-oxide fuel pellets from weapons plutonium as well as immobilization technology alternatives. Joint technical studies including technology demonstrations on options for plutonium disposition will continue with Russian counterparts.

Unlike plutonium, surplus U.S. highly enriched uranium can be rendered non-weapons-usable by blending it down to low enriched uranium for use in commercial reactor fuel. This is the most rapid path for neutralizing the proliferation threat and is consistent with the course of action now underway in Russia to reduce highly enriched uranium stockpiles. The Program's efforts in FY 1996 will focus on completing the required environmental analyses and identifying and implementing arrangements for the down-blending of the surplus highly enriched uranium materials. Throughout this process, private sector industrial capability will be utilized to the maximum extent practical to help assure a sound and cost effective infrastructure to accommodate increased quantities of

surplus highly enriched uranium over time. Involvement of the private sector facilitated prompt action in efforts to initiate down-blending of the 600kg of highly enriched uranium which the U.S. obtained from the Government of Kazakhstan under Project Sapphire in 1995. Progress in the efforts to disposition the surplus highly enriched uranium, by down-blending it with other surplus uranium materials to commercially useable low enriched uranium, will advance our nonproliferation goals while reducing storage and security costs and providing revenues to the Treasury from the commercial sale of these surplus assets.

In FY 1997, efforts will be directed toward completing the plutonium pit disassembly and conversion demonstration and toward beginning the design of a full scale, integrated, pit disassembly and plutonium conversion system. Efforts will also include beginning the design phase for site-specific long-term storage configurations for the Department's inventory of weapons-usable fissile materials and for tests and research demonstrations of vitrification and mixed oxide fuel technologies. These efforts will directly contribute to advancing U.S. and international nonproliferation interests and to improving the cost-effectiveness of the Department's management of stockpiles of surplus fissile materials. The specific goals, objectives, and performance measures for the Program follow.

The GOAL of the Fissile Materials Disposition Program is to:

Contribute to a reduction in the global nuclear danger associated with inventories of surplus weapons-usable fissile materials by developing strategies and directing actions to provide safe, secure, economic and inspectable long-term storage of U.S. weapons-usable fissile materials and to eliminate surplus materials through disposition in a manner that encourages cooperation and reciprocal action abroad.

The OBJECTIVES related to this goal are:

1. To Provide A Cost-Effective, Safe, Secure, Environmentally Sound and Inspectable Long-term Storage Configuration For The Department's Weapons-Usable Fissile Materials - Prepare the engineering, design, cost, schedule, and environmental analyses necessary to make and implement decisions on the future storage of the Department's inventory of weapons-usable fissile materials.

2. To Eliminate The Stockpile Of Surplus Weapons-Usable Uranium - Prepare the necessary engineering, design, cost, schedule, and environmental analyses to make and implement decisions regarding the verifiable disposition of surplus uranium. Take advantage of successful disposition arrangements by coordinating actions across Program lines. Where practical, utilize private sector industrial capabilities to process and disposition surplus uranium, thereby developing the infrastructure to accommodate increased quantities of surplus uranium over time. Generate revenues for the U.S. Treasury from the disposition of surplus uranium.

3. To Eliminate The Stockpile Of Surplus Weapons-Usable Plutonium - Demonstrate the early feasibility of a process for the verifiable disassembly, extraction, and conversion of plutonium from weapons components into forms suitable as feed for disposition technologies and/or storage, with an emphasis on pollution prevention. Prepare the necessary engineering, design, cost, schedule, and environmental analyses to enable decisions regarding the disposition of surplus weapons-usable plutonium. Maximize the use of existing facilities for disposition activities to the extent practicable. Disposition surplus weapons-usable plutonium to the spent fuel standard so that the plutonium is converted to a form that is as unattractive and as difficult to use in a nuclear weapon as the residual plutonium in commercial spent fuel.

Program Mission: FISSILE MATERIALS DISPOSITION

4 To Provide A Technical And Program Infrastructure To Enable The United States To Take Unilateral Action To Successfully Negotiate Reciprocal Actions With Other Nations For The Verifiable Disposition Of Surplus Weapons-Usable Plutonium - Continue Joint U.S. Russian Study on the disposition of plutonium to give the President the basis and flexibility to initiate disposition efforts either multilaterally or bilaterally through negotiations or unilaterally as an example to other nations. Demonstrate the feasibility of an integrated process and technologies that could be used by the U.S. and Russia for disassembly and verifiable extraction and conversion of plutonium from weapons components into forms suitable for long-term storage and disposition. Continue tests and experiments to validate disposition technology options under consideration prior to implementation.

PERFORMANCE MEASURES

Future Storage

- Complete engineering and conceptual designs, as well as schedule, and cost analyses for long-term storage of fissile materials across Departmental operations (FY 1996)
- Complete National Environmental Policy Act (NEPA) analyses and associated Records of Decision (ROD) for future long-term storage alternatives for all fissile materials (Late 1996)
- Start site-specific design(s) of a future storage facility(s)/or upgrades following ROD (FY 1997)
- Begin site-specific EIS for long-term storage facility decisions following the ROD (FY 1997)

Highly Enriched Uranium Disposition

- Complete schedule and cost studies for highly enriched uranium (HEU) disposition alternatives (FY 1996)
- Complete NEPA analyses and associated ROD for HEU disposition alternatives (FY 1996)
- Blend-down Project Sapphire HEU to low enriched uranium (LEU) for peaceful use as commercial reactor fuel (FY 1996)
- Begin conversion of quantities of surplus HEU and other uranium materials resulting from clean-up activities at weapons sites to non-weapons-usable forms through sale and/or disposition, maximizing reliance on private sector capabilities for blend-down (FY 1996 and outyears)

Plutonium Disposition

- Complete engineering, conceptual design, schedule, and cost studies for plutonium disposition alternatives (FY 1996/FY 1997)

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Program Mission: FISSILE MATERIALS DISPOSITION

- Complete NEPA analyses and associated RODs for disposition alternatives (FY 1996/FY 1997)
- Demonstrate an integrated system for verifiable pit disassembly and plutonium extraction and conversion for long-term storage and future disposition (FY 1997)
- Begin conceptual design for a pit disassembly and conversion facility (FY 1997)
- Characterize the mechanics of gallium evolution from mixed oxide fuel (MOX) and make determination of gallium on MOX fuel quality (FY 1996)
- Conduct MOX fuel pellet demonstrations (FY 1996/FY 1997)
- Demonstrate feasibility of utilizing can-in-can concept for vitrification technology (FY 1996/FY 1997)
- Minimize costs for implementation of immobilization option by leveraging off of available Departmental experience and facilities (FY 1996/FY 1997)
- Formulate glass and ceramics to incorporate plutonium, neutron poisons, and radiological barriers to meet processing and long-term performance requirements of immobilization disposition alternatives (FY 1997)
- Begin site-specific environmental analyses for a pit disassembly and conversion facility (FY 1997)

Cooperation and Reciprocity With Other Nations

- Conduct joint technical studies and demonstrations with Russian counterparts on options for plutonium disposition (FY 1996/FY 1997)
- Collaborate on technologies and processes for disassembly and conversion of weapons plutonium components to feed forms for disposition and long-term storage (FY 1996/FY 1997)

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS (to date):

- Completed an Environmental Assessment (EA) on the disposition of the Kazakhstan origin HEU materials and coordinated with USEC and U.S. industry to implement actions to down-blend the surplus, weapons-usable HEU for use in commercial reactor fuel.
- Prepared a draft EIS for the disposition of surplus HEU (a separate action was determined the most rapid path for neutralizing the proliferation threat

of surplus HEU).

- Increased revenue potential from privatization of USEC by arranging for the transfer of HEU and other surplus uranium to USEC for future blend-down and sale for use in commercial reactor fuel.
- Initiated demonstration of the Advanced Recovery and Integrated Extraction System (ARIES) process for disassembling nuclear weapon pits and converting the plutonium to unclassified forms suitable for long-term storage and/or disposition options.
- Prepared a draft PEIS on the future storage of fissile materials and the disposition of the surplus weapons-usable plutonium. Narrowed disposition technology options to focus the evaluation in the PEIS to save time and money in getting on with the job of surplus fissile material disposition.
- Conducted environmental, technical, cost, and schedule analyses to enable a decision on alternatives for fissile materials storage and disposition.
- Completed conceptual designs for a consolidated long-term storage facility and upgrade options.
- Completed validation of the hydride/dehydride process for pit conversion.
- Initiated a test of the feasibility of utilizing the "can-in-can" concept for vitrification at the Department's Defense Waste Processing Facility (DWPF).
- Initiated joint study with the Russians on plutonium disposition options and developed options for joint small scale technology demonstrations.

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FISSILE MATERIALS DISPOSITION
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Fissile Materials Disposition					
Operating	$ 48,820	$ 66,687	$ 0	$ 66,687	$ 73,163
Program Direction	1,426	3,313	269	3,582	3,633
Construction	0	0	0	0	17,000
Subtotal, Fissile Materials Disposition	$ 50,246 a/	$ 70,000	$ 269	$ 70,269	$ 93,796
Adjustment	7,295 b/				
TOTAL, FMD	$ 57,541	$ 70,000	$ 269	$ 70,269	$ 93,796
Staffing (FTEs)					
HQ FTEs	11	21	0	21	21
Field FTEs	0	0	0	0	0
Total FTEs	11 c/	21	0	21	21

a/Excludes $6,604 NE funds for Reactor Disposition Options; includes rescission (-19)
b/Use of prior year balances (+7,295)
c/ FTEs funded by originating line organizations in FY 1995

Public Law Authorizations:
PDD-13 Nonproliferation and Export Control Policy - 9/93
Public Law 103-337 Establishes Permanent DOE Office - 10/94
PDD-41 Improving Nuclear Security in Russia - 10/95

FISSILE MATERIALS DISPOSITION
PROGRAM FUNDING BY SITE
(Dollars in Thousands)

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office b/	$ 9,000	$ 10,020	$ 0	$ 10,020	$ 5,000
Los Alamos National Laboratory	4,252	13,205	0	13,205	21,100
Sandia National Laboratories	4,950	3,770	0	3,770	3,800
Chicago Operations Office	8,944	7,425	0	7,425	2,000
Argonne National Lab (West)	565	825	0	825	0
Brookhaven National Lab	320	0	0	0	0
Idaho Operations Office	0	25	0	25	0
Idaho National Engineering Lab	170	100	0	100	0
Nevada Operations Office	0	25	0	25	0
Oakland Operations Office	0	1,400	0	1,400	0
Lawrence Livermore National Lab	7,160	8,540	0	8,540	13,300
Oak Ridge Operations Office	4,175	9,855	0	9,855	650
Office of Scientific & Technical Informa	100	0	0	0	0
Oak Ridge National Lab	3,607	5,155	0	5,155	13,500
Richland Operations Office	0	25	0	25	0
Hanford Site (Richland)	117	100	0	100	0
Pacific Northwest Lab (Richland)	140	445	0	445	0
Rocky Flats Field Office	0	25	0	25	0
Rocky Flats Plant	0	30	0	30	0
Savannah River Operations Office	15	25	0	25	0
Savannah River Site	1,540	1,510	0	1,510	0
Washington Headquarters	5,191	7,495	269	7,764	7,856
All Other	0	0	0	0	26,590
Subtotal	$ 50,246	$ 70,000	$ 269	$ 70,269	$ 93,796
Adjustment	7,295 a/				
TOTAL	$ 57,541	$ 70,000	$ 269	$ 70,269	$ 93,796

a/ Use of prior year balances (+7,295)
b/ Includes funding for Amarillo National Resource Center for Plutonium (PRC): FY95 $9M; FY96 $10M; FY97 $5M MD, $5M DP

FISSILE MATERIALS DISPOSITION
PROGRAM OBJECT CLASS SUMMARY
(Dollars in Thousands)

		FY 1995 Original Appropriation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Personnel Compensation:						
11.1	Full-time permanent	$ 0	$ 0	$ 0	$ 0	$ 0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other Personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total Personnel Compensation	$ 0	$ 0	$ 0	$ 0	$ 0
12.1	Civilian personnel benefits	0	0	0	0	0
13.0	Benefits for former personnel	0	0	0	0	0
21.0	Travel and transportation of persons	0	0	0	0	0
22.0	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.3	Communications, utilities and miscellaneous charges	0	0	0	0	0
24.0	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	0	0	0	0	0
25.2	Other services	47,760	$ 47,760	60,125	60,125	69,898
25.3	Purchases of goods & services from government accounts	1,060	1,060	1,262	1,262	1,265
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.7	Operation and maintenance of equipment	0	0	0	0	0
26.0	Supplies and materials	0	0	0	0	0
31.0	Equipment	0	0	5,300	5,300	2,000
32.0	Land and structures	0	0	0	0	17,000
99.0	Subtotal	$ 48,820	$ 48,820	$ 66,687	$ 66,687	$ 90,163
	Reimbursables	0	0	0	0	0
99.9	TOTAL	$ 48,820	$ 48,820	$ 66,687	$ 66,687	$ 90,163

FISSILE MATERIALS DISPOSITION

I. Mission Supporting Goals and Objectives

The Fissile Materials Disposition Program is responsible for technical and management activities to provide for the safe, secure, environmentally sound, long-term storage of all weapons-usable fissile materials and the disposition of fissile materials declared surplus to national defense needs. Analyses being conducted include engineering, design, cost, schedule and environmental characteristics of each alternative being considered in order to support a decision process resulting in a ROD. RODs are planned for the second quarter of 1996 for HEU disposition and late 1996 for the long-term storage of all fissile materials and disposition of surplus fissile materials.

This budget request precedes upcoming programmatic decisions that will define the scope of the specific long-term storage and disposition activities. As a result, funds requested for implementation of HEU disposition were based upon the Department's preferred alternative documented in the EIS Implementation Plan. Funds requested for implementation of long-term storage decisions and plutonium disposition decisions were based upon a set of assumptions for expected first year's expenditures for alternatives under consideration. Alternatives are:

- Storage alternatives for all weapons-usable fissile materials include: (1) continued storage in existing facilities (no action alternative required under NEPA), (2) upgrade of current storage facilities; and (3) consolidation at DOE sites(s).

- Disposition alternatives for HEU and other uranium materials include: (1) continued storage as HEU, (2) blend-down to LEU for use in commercial reactors, and (3) blend-down and disposal as waste. The Department has identified a preferred alternative comprised of the following: (1) transfer approximately 50 metric tons of HEU to USEC over the next several years for blend-down and use in commercial reactor fuel, (2) sell additional quantities of surplus HEU or LEU from blended-down HEU for use in commercial reactor fuel, and (3) continue storage of blended-down surplus HEU that has no commercial value pending final disposal.

- Technology alternatives for the disposition of surplus weapons plutonium fall into three categories:

  - Nuclear Reactors/MOX fuel - surplus plutonium would be fabricated into MOX fuel for use in existing, modified, or new nuclear reactors that would consume (fission) some of the plutonium and embed the rest in highly radioactive spent fuel similar to that now produced by commercial power reactors. The spent fuel would subsequently be stored and ultimately disposed of in a geologic repository. Reactor options evaluated include: existing light water reactors (LWRs); partially completed LWRs; new evolutionary or advanced LWRs; and Canadian Deuterium Uranium (CANDU) reactors.

  - Immobilization - surplus plutonium would be vitrified or embedded in ceramic or other material, either alone or mixed with radioactive high-level wastes, to form glass or ceramic for ultimate disposal in a geologic repository. Technical options under consideration include: new borosilicate glass vitrification facility; new ceramic immobilization facility, use of the existing DWPF ("can-in-can"), and electrometallurgical treatment at an existing facility.

  - Geologic Disposal - surplus plutonium, in an acceptable form, would be placed in canisters either with or without added radiation barriers, and

buried in deep boreholes drilled into the earth.

Options for dealing with surplus weapons-usable plutonium disposition are diverse, complex, and require substantial analyses to address environmental, technical, cost, nonproliferation policy, and regulatory issues. Technical efforts and analyses required for the decision process will provide a foundation for selecting technology alternatives at ROD.

Other disposition-related activities include:

- Demonstration of hydride/dehydride technology as part of an integrated system for disassembling nuclear weapon pits and converting plutonium to unclassified forms required for any disposition option selected in the ROD. The integrated process would convert classified weapon shapes and geometries into forms suitable for long-term storage or disposition. The process can facilitate inspections as part of future arms control regimes that require verification of weapon dismantlement and/or material disposition.

- Completion of a joint study with Russian counterparts on plutonium disposition options and implementing options for small scale technology demonstrations.

II. Funding Schedule: (dollars in thousands)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Storage Options	$ 5,184	$ 6,780	$ 24,600	$ 17,820	% 262.8
Disposition Options	18,594	21,150	31,760	10,610	50.2
Technical Integration, Support & Associated Technologies	13,259	29,407	27,453	-1,954	-6.6
NEPA Compliance	11,783	9,350	6,350	-3,000	-32.1
Total a/	$ 48,820	$ 66,687	$ 90,163	$ 23,476	% 35.2

a/ FY 1995 excludes $7,295 prior year balances and $6,604 NE funds for Reactor Disposition Options.

III. Performance Summary:

Performance Summary: FISSILE MATERIALS DISPOSITION

FY 1995 Accomplishments

- Issued Notice of Intent, conducted public scoping, and issued Implementation Plans associated with the EIS and PEIS for long-term storage and disposition alternatives.
- Completed an EA on the disposition of the Kazakhstan origin HEU materials (Project Sapphire) and shipped materials to an industrial firm to blend the material to LEU suitable for use in commercial reactor fuel.
- Prepared an EIS for the disposition of surplus HEU (a separate action was determined the most appropriate, rapid path for decisions on surplus HEU disposition).
- Developed cost effective methods with USEC and U.S. industry to disposition surplus HEU in a safe, secure, and environmentally sound manner.
- Generated revenues by arranging for the transfer of 50 mt of HEU plus other surplus uranium to USEC for blend-down and future sale for use in commercial reactor fuel resulting in significant financial returns to the Treasury in FY 1996.
- Initiated demonstration of an integrated process for disassembling nuclear weapon pits and converting the plutonium to unclassified forms suitable for long-term storage and/or disposition.
- Initiated preparation of a PEIS on the future storage of fissile materials and the disposition of the surplus weapons-usable plutonium. Narrowed down the number of disposition technology options significantly to focus the evaluation in the PEIS and save time and money in getting on with the job of surplus fissile materials disposition.
- Conducted required environmental, technical, cost, and schedule analyses to enable a decision on alternatives for fissile materials storage and disposition. Completed approximately 40 technical studies/reports. Additional essential studies/reports are underway and will be completed in FY 1996.
- Completed preconceptual designs for a consolidated long-term storage facility and upgrade options.
- Completed initial research and development on the morphology of MOX fuel pellets from weapons grade plutonium.
- Completed validation of the hydride/dehydride process for plutonium pit conversion to metal ingot forms.
- Demonstrated that cesium and plutonium can be incorporated in ceramic formulation.
- Initiated a test of the feasibility of utilizing the "can-in-can" concept for vitrification at the Department's DWPF.

Performance Summary: FISSILE MATERIALS DISPOSITION

- Initiated licensing discussions with NRC on all alternatives.
- Initiated joint study with the Russians on plutonium disposition options and developed options for joint small scale technology demonstrations.

FY 1996 Accomplishments (to date and planned):

- Complete environmental, schedule and cost studies for HEU disposition.
- Select disposition alternatives for HEU (second quarter of FY 1996).
- Provide for the transfer of 50mt of surplus HEU and other surplus uranium materials to USEC for blenddown and use in commercial reactor fuel over the next several years.
- Develop and execute industrial arrangements for blend-down and commercial sale of additional quantities of surplus HEU and other uranium materials, including materials from weapons site cleanup activities.
- Blend-down Project Sapphire HEU to LEU for peaceful use as commercial reactor fuel.
- Complete design and initiate certification of shipping containers for HEU.
- Complete environmental, technical, cost and schedule analyses to enable a decision on alternatives for fissile materials future storage and disposition.
- Completed conceptual designs for a consolidated long-term storage facility and upgrade options.
- Completed a Conceptual Design Report for a non site-specific consolidated long-term storage facility.
- Initiate a multi-program coordination effort on storage designs, material forms and containers to ensure consistency across DOE complex.
- Publish a draft and final PEIS for the future storage of all fissile materials and disposition of fissile materials declared surplus to national defense needs.
  - ? Select alternatives and site(s) for future storage actions-- at ROD after final PEIS (late 1996).
  - ? Select disposition technologies for surplus plutonium -- at ROD after final PEIS (late 1996).

Performance Summary: FISSILE MATERIALS DISPOSITION

- Demonstrate integrated system for extraction and conversion process for plutonium materials to forms suitable for disposition (ARIES). Facility includes decontamination/preparation of existing room and installation of gloveboxes and associated process support equipment.
- Demonstrate feasibility of utilizing can-in-can concept at the DWPF for vitrification disposition.
- Characterize the mechanics of gallium evolution from MOX fuel and determine the effect of gallium on MOX fuel quality.
- Formulate glass and ceramics to incorporate weapons plutonium, neutron poisons and radiological barriers to meet processing and long-term performance requirements of immobilization disposition alternatives.
- Complete the U.S./Russian Joint Study and conduct technical demonstrations in order to provide U.S. and Russian decision makers a set of consistently evaluated plutonium disposition alternatives to form a mutual foundation for equivalent plutonium disposition actions.

FY 1997 Planned Accomplishments:

- Disposition surplus HEU and other surplus uranium materials.
- Begin Title I design of site-specific storage facility(s) following the ROD.
- Continue research and development tests and experiments of immobilization and MOX fuel technologies.
- Complete testing of an integrated system for disassembly and conversion of weapons plutonium pits into forms suitable for long-term storage and disposition and begin conceptual design for an operational plant.
- Continue technical collaboration with Russia including cooperation in tests and research.
- Begin project-specific EAs or EISs associated with future storage and disposition decisions following the ROD as required by NEPA.

Explanation of Funding Changes FY 1996 to FY 1997:

The increases reflect the progress in the Program efforts as it moves from analyses and technical studies to decisions and implementation:

- Storage Options - the net increase of $17,820,000 is primarily due to Title I design of a site-specific long-term storage facility(s) option(s) selected in the ROD and research and development associated with the operational aspects of the facility(s).
- Disposition Options - the net increase of $10,610,000 is due to research and development and testing of disposition alternatives to validate options

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prior to implementation, partially offset by completion of direct geologic and repository impact evaluations required to support the ROD.

- Technical Integration, Support & Associated Technologies - the net decrease of $1,954,000 is primarily due to completion of common technologies evaluations and analyses required to support the ROD and completion of the ARIES demonstration. Beginning conceptual design of a pit disassembly and conversion facility and research and development associated with the conversion of nonpits is also included here.

- NEPA Compliance - the decrease of $3,000,000 is due to the completion of the EIS for HEU disposition and the PEIS for long-term storage of all weapons-usable fissile materials and plutonium disposition. The EIS and PEIS documentation will serve as the basis for EAs or EISs associated with implementation of site-specific future storage and disposition options selected in the ROD.

FISSILE MATERIALS DISPOSITION
PROGRAM DIRECTION OBJECT CLASS SUMMARY
(Dollars in Thousands)

		FY 1995 Original Appropriation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Personnel Compensation						
11.1	Full-time permanent	$ 139	$ 139	$ 1,747	$ 1,747	$ 1,800
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other Personnel compensation	3	3	49	49	63
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total Personnel Compensation	$ 142	$ 142	$ 1,796	$ 1,796	$ 1,863
12.1	Civilian personnel benefits	27	27	704	704	712
13.0	Benefits for former personnel	0	0	0	0	0
21.0	Travel and transportation of persons	300	300	240	240	240
22.0	Transportation of things	0	0	0	0	0
23.1	Rental Payments to GSA	0	167	0	171	188
23.3	Communications, utilities and miscellaneous charges	0	34	0	34	34
24.0	Printing and reproduction	0	46	35	67	62
25.1	Advisory and assistance services	321	321	273	273	232
25.2	Other services	195	195	200	200	200
25.3	Purchases of goods & services from government accounts	17	17	25	25	30
25.4	Operation and maintenance of facilities	0	0	0	0	0
25.5	Research and development contracts	0	0	0	0	0
25.7	Operation and maintenance of equipment	144	144	30	30	30
26.0	Supplies and materials	15	33	10	42	42
31.0	Equipment	0	0	0	0	0
32.0	Land and structures	0	0	0	0	0
99.0	Subtotal	$ 1,161	$ 1,426	$ 3,313	$ 3,582	$ 3,633
	Reimbursables	0	0	0	0	0
99.9	TOTAL	$ 1,161	$ 1,426	$ 3,313	$ 3,582	$ 3,633

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FISSILE MATERIALS DISPOSITION PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities

Program direction provides overall management, oversight, staffing, and administrative support necessary to carry out the mission of the Fissile Materials Disposition program. Operations are conducted in an efficient and streamlined manner consistent with National Performance Review objectives and Departmental strategic alignment initiatives. Program direction has been grouped into four categories.

Salaries and Benefits provides for Federal personnel compensation to include SES and other awards, overtime, lump sum leave payments, transit subsidy costs, and employer's contribution to employees' benefits.

Travel includes domestic and foreign trips necessary to conduct business in carrying out the mission of the program. International travel is frequent in that Fissile Materials Disposition serves as the Department's representative on the Joint U.S. Russian Study on plutonium disposition options.

Support Services include program analyses and office operations functions which result in improving the effectiveness, efficiency, and economy of management and general administrative services.

Other Related Expenses include employee training, interpreter services, rental space, telecommunications, utilities and miscellaneous charges, printing and reproduction, operation and maintenance of equipment, supplies and materials, and other miscellaneous expenses associated with office operations.

II. Funding Table: (dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Headquarters					
Salary and Benefits	$ 169	$ 2,500	$	$ 2,500	$ 2,575
Travel	$ 300	$ 240	$	$ 240	$ 240
Support Services	$ 321	$ 273	$	$ 273	$ 232
Other Related Expenses	$ 636	$ 300	$ 269	$ 569	$ 586
Total	$ 1,426	$ 3,313	$ 269	$ 3,582	$ 3,633
Full Time Equivalents	11	21		21	21
Average	$ 130	$ 157	$	$ 171	173

III. Performance Summary:

Performance Summary: FISSILE MATERIALS DISPOSITION

FY 1995 Measurable Performance Activities:

- Lead effort to successfully ship Kazakhstan origin HEU materials to an industrial firm for blend-down.
- Directed technical, cost, schedule, and environmental analyses efforts in support of future decisions on long-term storage and HEU and plutonium disposition.
- Directed efforts toward completion of preconceptual designs for a consolidated long-term storage facility(s) and upgrade options.
- Developed and coordinated plans to begin demonstrations and tests of ARIES and disposition options under consideration.
- Represented the Department in working with the Russians to initiate a Joint US-Russian Study on plutonium disposition options.

FY 1996 Measurable Performance Activities:

- Initiate teaming effort with other DOE programs to coordinate future departmental storage decisions.
- Direct and oversee efforts to ensure technical, cost, schedule, and environmental analyses are completed to provide information necessary to make decisions on long-term storage and HEU and plutonium disposition.
- Direct and oversee the start of the testing of the ARIES system.
- Direct and oversee the research and development and testing of disposition options necessary for implementation.
- Work with USEC and the commercial sector to disposition HEU and other surplus uranium materials.
- Represent the Department in working with the Russians to complete the Joint US-Russian Study on plutonium disposition options.

FY 1997 Measurable Performance Activities:

- Work with USEC and the commercial sector to disposition HEU and other surplus uranium materials.
- Award and manage activities to complete Title I design of site-specific storage facility(s).
- Direct and oversee the completion of the testing of the ARIES system and award and manage conceptual design activities for the pit disassembly and conversion facility.

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Performance Summary: FISSILE MATERIALS DISPOSITION

- Direct and oversee the research and development and testing of disposition options necessary for implementation.
- Award and manage activities to begin work on project-specific EAs or EISs for future storage and disposition decisions.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

Program Direction - the net increase of $51,000 is for salary adjustments in accordance with allowable inflation factors. This also reflects a decrease in support service contracts.

V. Explanation of Average FTE Costs:

Average FTE costs include travel, support services, other related expenses., and the program's fair share of the Department's Working Capital Fund. FY 1995 average FTE costs exclude salaries and benefits as FTEs were funded by originating line organizations.

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FISSILE MATERIALS DISPOSITION
CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY
(Dollars in thousands)

Capital Operating Expenses	FY 1995	FY 1996	FY 1997	$ CHG.	% CHG.
GPP (total)	$ 0	$ 0	$ 0	$	%
AIP (total)	0	0	0		
Capital Equipment (total)	0	5,300	2,000	(3,300)	-62%
Project Related Costs					
1. CDRs	0	2,000	4,500	2,500	125%
2. "Bridge" Costs	$ 5,184	$ 8,416	$ 52,100	$ 43,684	% 519%

Construction Project summary (both Operating and Construction Funded)

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Unapprop. Balance
97-D-140	Consolidated Spec Nuclear Mat Storage Facility	$ TBD	$ 0	$ 0	$ 0	$ 17,000	$ TBD
Total Fissile Materials Disposition		$ 0	$ 0	$ 0	$ 0	$ 17,000	$ 0

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Detailed Breakouts

CDRs - Exceeding $3 Million	Total CDR Cost	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Comp. Date
1. Consolidated Spec Nuclear Mat Storage Facility	$ 2,000	$ 0	$ 0	$ 2,000	$ 0	FY 1996
2. Pit Disassembly & Conversion Facility	TBD	0	0	0	4,500	FY 1998
Total	$ 2,000	$ 0	$ 0	$ 2,000	$ 4,500	

"Bridge" Costs - Exceeding $3 Million	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request
1. Consolidated Spec Nuclear Mat Storage Facility	$ 0	$ 5,184	$ 0	$ 10,600
2. Pit Disassembly & Conversion Facility	0	0	8,416	19,800
3. Immobilization Facility	0	0	0	13,700
4. MOX Fuel Facility	0	0	0	8,000
Total	$ 0	$ 5,184	$ 8,416	$ 52,100

Major Items of Equipment (CE $2 Million and Above)	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Acceptance Date
1. No one item of equipment costs $2M or more	$ 0	$ 0	$ 0	$ 0	$ 0	
Total	$ 0	$ 0	$ 0	$ 0	$ 0	

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)
OTHER DEFENSE ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)
FISSILE MATERIALS DISPOSITION

1. Title and Location of Project:	Consolidated Special Nuclear Materials Storage Facility Design Only - Site to be Determined at Record of Decision (late 1996)	2a. Project No. 97-D-140 2b. Construction Funded
3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY97 3b. A-E Work (Titles I & II) Duration: 36 months		5. Previous Cost Estimate: none
4a. Date Physical Construction Starts: FY 1999 4b. Date Construction Ends: FY 2002		6. Current Cost Estimate:$17,000 (Design Only) Total Estimated Cost: TBD Total Project Cost: TBD

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1997	$17,000	$0	$17,000	$10,200

FY 1998-Beyond - TBD

This budget request precedes upcoming programmatic decisions that will define the scope of the specific long-term storage activities. As a result, funds requested for implementation of long-term storage decisions were based upon a set of assumptions for expected first year's expenditures for alternatives under consideration. Alternatives for future long-term storage of all weapons-usable fissile materials include: (1) continued storage in existing facilities (no action alternative required under NEPA); (2) upgrade of current storage facilities; and (3) consolidation at DOE site(s). The Department expects to complete and issue a Record of Decision (ROD) on the long-term storage of plutonium by late 1996. As the ROD is developed, the Office of Fissile Materials Disposition will coordinate with other DOE programs to integrate storage plans and capabilities to optimize use of existing facilities and minimize costs. The Title I funding would not preclude or prejudice any final ROD, rather it would help assure that construction funding is available to support prompt implementation of Title I design following the ROD. This initial design effort could be applied either at Savannah River (a candidate site for the consolidated facility, or a new Actinide Packaging and Storage Facility) or at another candidate site.

8. Project Description, Justification, and Scope

Since this request precedes the Record of Decision (late 1996), Title I design funding is requested in terms of a consolidated storage facility, however, funding could be used for any alternative selected.

This project provides for new construction for the safe, secure, consolidated storage of surplus and strategic plutonium materials that exist at DOE sites. The project results in a Consolidated Special Nuclear Materials Storage Facility at an existing DOE site, thereby using the existing balance of plant facilities to make the storage plant fully operational. Funding is required to provide for the new construction and to upgrade the existing balance of plant facilities for the storage facility.

The Consolidated Special Nuclear Materials Storage Facility includes a new, secure, safety class hardened material handling area, material storage area and a non-safety class support area. The material handling area provides for Safe Secure Transport loading/unloading, cargo restraint transporter handling, material confirmation, shipping package staging, unpackaging/packaging, accountability measurement, repackaging, maintenance, and satellite waste collection. The material storage area is modular in design and includes the passively cooled surplus and strategic reserve storage vaults and a safety evaluation area; an international inspection area is provided for the surplus material vaults. The support area includes change rooms, office area, the central control room, the waste packaging area, and the analytical laboratory. The storage plant includes automated storage and retrieval equipment in the material handling area and the material storage area.

The justification for this project is :

1. Currently the Department's plutonium inventory is located at numerous sites across the DOE complex which are not suitable for the long-term storage of plutonium.

2. Consolidation of materials would save money by reducing security and safeguards costs and other facility operation costs.

3. Increased use of automation would reduce radiation exposure to plant personnel.

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		TBD
1. Engineering design and inspection at approximately 17.6 percent of construction costs, Item c (Design, Drawings, and Specifications)		
2. Construction Management Costs		
3. Project management @ 5% of construction costs (Item c)		
b. Land and land rights		0
c. Construction costs		TBD
1. Improvements to land		
2. Buildings		
3. Other structures		
4. Utilities		
5. Special Facilities		
d. Standard Equipment		TBD
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a. through g.)		TBD
i. Contingencies at approximately 30 percent of above costs		TBD
j. Total line item cost (Section 12, a. 1. (a))		TBD
Less Federal Contribution		0
l. Net Federal total estimated cost (TEC)		TBD

10. Method of Performance

Method of performance will be through competitive selection of an A&E firm for design (Title I/II/III) and a construction firm. To the extent feasible, procurement will be accomplished by fixed price contracts.

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11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1996	FY 1997	FY 1998	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	0	0	$10,200	TBD	TBD	TBD
(b) Plant Engineering & Design	0	0	0	0	0	0
(c) Oper. Exp. funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-federal)	0	0	$10,200	TBD	TBD	TBD
2. Other project costs						
(a) R&D necessary to complete project	0	0	4,560	TBD	0	TBD
(b) Conceptual design costs	0	2,000	0	0	0	2,000
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	TBD	TBD
(d) NEPA Documentation Costs			3,000	0	0	3,000
(e) Other project-related costs	10,020				TBD	TBD
(f) Total other project costs	$10,020	$2,000	$7,560	TBD	TBD	TBD
(g) Total project cost	$10,020	$2,000	$17,760	TBD	TBD	TBD
(h) LESS: Non-Federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$10,020	$2,000	$17,760	TBD	TBD	TBD

b. Related annual costs (estimated useful life of facility--50 years)	
1. Facility operating costs:	TBD
2. Facility maintenance and repair costs:	TBD
3. Programmatic operating expenses directly related to the facility:	TBD
4. Capital equipment not related to construction but related to the programmatic effort in the facility:	TBD
5. GPP or other construction related to the programmatic effort in the facility:	TBD
6. Utility costs:	TBD

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7. Other costs (Environmental, waste mgmt., safeguards & security)	TBD
Total related annual costs	TBD

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total Project Funding
   1. Total facility costs
      (a) Line item -- TBD
      (b) PE&D -- TBD
      (c) Operating expense funded equipment -- TBD
      (d) Inventories -- TBD

   2. Other Project Costs
      (a) R&D -- TBD
      (b) Conceptual design-- Completed
      (c) Decontamination & Decommissioning-- TBD
      (d) NEPA documentation-- includes site specific environmental impact statement

b. Related Annual Costs
   1. Facility operating costs -- TBD
   2. Facility maintenance and repair costs -- TBD
   3. Programmatic operating expenses -- TBD
   4. Capital equipment not related to construction-- TBD
   5. GPP or other construction related to the project-- TBD
   6. Utility costs -- TBD
   7. Other costs -- TBD

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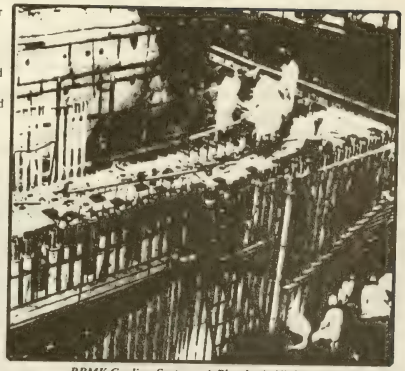
INTERNATIONAL NUCLEAR SAFETY AND CHORNOBYL INITIATIVE

PROGRAM MISSION

The International Nuclear Safety and Chornobyl Initiative program is designed to reduce the national security and environmental threats posed by the operation of unsafe and aging nuclear facilities around the world. Particular attention is paid to improving the safety of Soviet-designed nuclear power plants and to shutdown of the Chornobyl plant, site of the world's worst nuclear disaster. The program helps maintain core competencies in nuclear safety through the establishment of international nuclear safety centers in the U.S. and elsewhere, and through cooperative research and development with other countries and international organizations. These activities are conducted consistent with guidance and policies established by the U.S. Department of State, the Agency for International Development, and the Nuclear Regulatory Commission.



RBMK Cooling System - A Plumber's Nightmare

The GOALS of the International Nuclear Safety and Chornobyl Initiative program are to:

1. Improve nuclear safety worldwide, particularly the safety of Soviet-designed nuclear power plants.

2. Secure shutdown of the Chornobyl nuclear power plant.

3. Develop and maintain core competencies in the area of nuclear safety.

The OBJECTIVES related to these goals are:

1. To enhance the safety of Soviet-designed nuclear power plants and help host countries upgrade their nuclear safety cultures and supporting infrastructures through installation of equipment and development of methods which will improve the safety of operations; transfer technologies needed to reduce risk of reactor operations; incorporate the owners and operators of Soviet-designed nuclear power plants as full partners in the global nuclear industry; cultivate a more robust attitude towards nuclear safety; enhance indigenous capabilities to evaluate safety and make decisions about shutdown; and create opportunities for U.S. industries in the host countries.

The OBJECTIVES related to these goals are: - continued

2. Assist in the shutdown of the Chornobyl reactors.

3. Support international nuclear safety centers in the U.S. and elsewhere.

4. Initiate nuclear safety dialogues with emerging nuclear nations.

5. Provide technical leadership in international nuclear organizations.

6. Facilitate and increase commercial contacts between U.S. nuclear suppliers and potential foreign buyers.

PERFORMANCE MEASURES:

Demonstrated success is a key element of the International Nuclear Safety and Chornobyl Initiative program. Overall program measures of success include the following:

1. Development of and agreement on program goals, objectives, and strategic plans between the U.S. and the host countries;

2. Involvement of plant operators, plant technical support, and regulators in program planning and execution;

3. Agreement among interested parties in the U.S. and host countries on safety problems and priorities;

4. Evidence of the host country making independent decisions regarding safety upgrades, operation, and shutdown in light of safety concerns;

5. Measurable improvements in plant operational and operator performance;

6. Successful operation of international nuclear safety centers in Russia and Ukraine;

7. Development of comprehensive decommissioning and decontamination plans for the Chornobyl nuclear power plant in anticipation of shutdown; and

8. Participation in three to five nuclear export-related missions, workshops, or seminars to promote U.S. vision on nuclear safety.

Molten debris mass containing a few percent fuel:
After the Chornobyl-4 accident, the reactor core melted and flowed through vapor suppression pipes to the suppression pool volume under the reactor vault

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SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Established training centers in Russia and Ukraine and completed the development of pilot training courses.
- Provided basic fire protection equipment to pilot plants in Russia and Ukraine. Developed a fire hazards evaluation methodology for use on Soviet-designed power plants.
- Initiated the acquisition and the transfer of technology for a full-scope VVER-1000 plant simulator along with several analytical simulators and plant analyzers, a spent fuel storage capability, and Safety Panel Display Systems for six RBMK reactors.
- Implementing U.S. style symptom-based emergency operating instructions and conduct of operations guidance at pilot plants.
- Completed specifications and contracting for the following safety system improvements at pilot plants in Russia: improved confinement leak tightness and reliable emergency DC power supply at the Kola plant; a Safety Panel Display System at the Novovoronez plant; and a reliable emergency DC power supply, emergency core cooling water system, and ultra sonic inspection system at the Kursk plant.
- Provided upgraded fire-fighting equipment to the Koyloduy plant site.
- Provided plant analyzers and on-site training in Bulgaria and Lithuania.
- Began cooperative projects among U.S., Russian, and Ukrainian international safety centers supported by U.S. national laboratories.
- Participated in four nuclear export and safety-related missions, workshops, or seminars.

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INTERNATIONAL NUCLEAR SAFETY AND CHORNOBYL INITIATIVE

PROGRAM FUNDING PROFILE

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
International Nuclear Safety and Chornobyl Initiative	$ 60,400[1]	$ 0	$ 30,000[2]	$ 30,000[2]	$ 66,200
TOTAL, International Nuclear Safety and Chornobyl Initiative	**$ 60,400[1]**	**$ 0**	**$ 30,000[2]**	**$ 30,000[2]**	**$ 66,200**

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[1] Appropriation transfer from USAID. Excludes $30.0 million appropriation transfer received late FY 1994. Funds transferred to the Energy Supply, Research and Development Appropriation.

[2] Funds appropriated under Other Defense Activities.

INTERNATIONAL NUCLEAR SAFETY AND CHORNOBYL INITIATIVE

PROGRAM FUNDING BY SITE

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Richland Operations Office	$ 0	$ 0	$ 0	$ 0	$ 0
Pacific Northwest Laboratory	55,300	0	27,000	27,000	61,400
Chicago Operations Office	3,838	0	0	0	4,300
Argonne National Laboratory	0[3]	0	2,100	2,100	0[3]
All Other Sites	1,262	0	900	900	500
TOTAL, International Nuclear Safety and Chornobyl Initiative	**$ 60,400[4]**	**$ 0**	**$ 30,000[5]**	**$ 30,000[5]**	**$ 66,200**

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[3] International Nuclear Safety Center at ANL funded in the Energy Supply, Research and Development Appropriation under the Nuclear Technology R&D program in FY 1995 and FY 1997.

[4] Appropriation transfer from USAID. Excludes $30.0 million appropriation transfer received late FY 1994. Funds transferred to the Energy Supply, Research and Development Appropriation.

[5] Funds appropriated under Other Defense Activities.

INTERNATIONAL NUCLEAR SAFETY AND CHORNOBYL INITIATIVE

PROGRAM OBJECT CLASS SUMMARY

Personnel Compensation:	FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997
25.2 Other services	$ 60,400[6]	$ 0	$ 30,000[7]	$ 0	$ 66,200
99.9 TOTAL	**$ 60,400[6]**	**$ 0**	**$ 30,000[7]**	**$ 0**	**$ 66,200**

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[6] Appropriation transfer from USAID. Excludes $30.0 million appropriation transfer received late FY 1994. Funds transferred to the Energy Supply, Research and Development Appropriation.

[7] Funds appropriated under Other Defense Activities.

I. Mission Supporting Goals and Objectives

This activity has five elements that are critical to achieving lasting improvements in nuclear safety culture and infrastructure development. First, the program is working to improve the capabilities of nuclear power plant operators to establish sound operational procedures, and to develop methods for responding to operational abnormalities. Second, the program seeks to improve the physical condition of the plants, particularly their safety systems. Third, the program provides professionals involved in the design, operation, and regulation of nuclear power plants with the techniques and expertise required to conduct safety analyses that are consistent with Western practices. The fourth element is assistance to host countries in developing the domestic liability legislation needed to enable a broader involvement of U.S. private industry and establish a strong, independent regulatory authority. Additionally, some of the above activities will also be provided to Soviet-designed reactors in Central and Eastern European countries.

The International Nuclear Safety and Chornobyl Initiative helps to maintain core competencies in nuclear safety through its support for international nuclear safety centers, which undertake cooperative research and development programs, information exchanges, computer modeling, and other activities. One such center is being established in Ukraine to address some of the problems associated with Chornobyl shutdown; in addition, the program is assisting with short-term upgrades at Chornobyl to ensure safety for the remainder of its operating lifetime.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Management & Operational Safety Improvements	$ 13,862	5,200	$ 14,900	$ 9,700	187
Engineering & Technology Upgrades	30,595	16,500	26,300	9,800	59
Plant Safety Evaluations	3,405	2,400	4,000	1,600	67
Nuclear Safety Legislative & Regulatory Support	0	800	1,000	200	25
Program Management	5,638	3,000	7,500	4,500	150
International Nuclear Safety Centers	1,000	2,100	3,000[8]	900	43
Chornobyl Shutdown Initiatives	5,900	0[9]	9,000	9,000	100
Cooperation with Other Countries	0[10]	0[10]	500	500	100
TOTAL, International Nuclear Safety and Chornobyl Initiative	**$ 60,400[11]**	**$ 30,000[12]**	**$ 66,200**	**$ 36,200**	**121**

[8] International Nuclear Safety Center at ANL funded in the Energy Supply, Research and Development Appropriation under the Nuclear Technology R&D program in FY 1995 and FY 1997.

[9] Program activities will continue if U.S. AID provides additional funds.

[10] Cooperation activities funded under the Policy and Management account in FY 1995, and unobligated carryover funds in the Soviet-designed Reactor Safety account in FY 1996.

[11] Appropriation transfer from USAID. Excludes $30.0 million appropriation transfer received late FY 1994. Funds transferred to the Energy Supply, Research and Development Appropriation.

[12] Funds appropriated under Other Defense Activities.

III. Performance Summary

FY 1995 Accomplishments:

- Established training centers in Russia and Ukraine and completed the development of 50 percent of the planned training courses.
- Implemented improvements to the confinement and emergency DC power supply of two units at Kola.
- Provided fire protection equipment and materials to a plant in Russia and to a plant in the Ukraine.
- Completed the risk management program for the Dukovany nuclear power plant in the Czech Republic.
- Provided equipment for training center and delivered 1100 kilowatts backup diesel generator for the Kozloduy nuclear power plant in Bulgaria.
- Completed baseline probabalistic risk assessment per review at Ignalina nuclear power plant in Lithuania.
- Initiated implementation of Ukraine Safety and Environmental Research and Development Center support by U.S. national laboratories.
- Participated in four nuclear export- and safety-related missions, workshops, or seminars.
- Completed Joint U.S./Russia Nuclear Power Alternatives Study.

FY 1996 Accomplishments (to date and planned):

- Complete remaining training courses at training centers in Russia and Ukraine.
- Implement emergency operating instructions at VVER 440/230 pilot plant.
- Continue implementation of a Safety Panel Display System at a VVER-440/230 and RBMK reactor in Russia.
- Implement confinement improvements and an emergency DC power supply system at an RBMK plant.
- Implement backup emergency reactor cooling systems at a RBMK and a VVER-440/230 plant.
- Complete software for several analytical simulators and plant analyzers.
- Continue work on emergency operating instructions and conduct of operations procedures at remaining RBMK and VVER 440/230 pilot plants in Russia, Ukraine, Lithuania, Bulgaria, Slovakia, Hungary, and Czech Republic.
- Implement safety improvements that address maintenance problems.

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FY 1996 Accomplishments (to date and planned) - continued:

- Provide Ukraine with an indigenous spent fuel storage capability.
- Train Russian and Ukrainian plant personnel to perform fire hazard analysis.
- Complete upgrades at the Trnava training center in Slovakia Republic to improve to western standards.
- Provide all training workshops, seismic analyses, and maintenance training support requested by Bulgaria.
- Complete the development and training on advanced applications for the RBMK plant analyzer at the Ignalina plant in Lithuania.
- Initiate replacement of electronic modules at Ignalina plant.
- Participate in three-to-five nuclear export-related missions, workshops, or seminars.
- Develop and maintain nuclear policy and market profiles.
- Initiate cooperation on decontamination and decommissioning planning for Chornobyl.

FY 1997 Planned Accomplishments:

- Complete emergency operating instructions at VVER-1000 and VVER-213 pilot plants.
- Implement Safety Panel Display Systems at five additional RBMK plants.
- Continue work to implement a non-destructive examination capability in countries with Soviet-designed plants.
- Complete installation of several full scope simulators in Russia and Ukraine.
- Implement fire safety improvements identified in plant-conducted, fire hazards analysis.
- Begin implementation of safety related instrumentation and control upgrades at RBMK and VVER plants.
- Complete plant specific safety evaluation reports for four nuclear plants in Russia and Ukraine.
- Initiate operational improvements in Ukraine in area of configuration management, event analysis and reporting.
- Complete installation and training on the Hungarian Paks plant analyzers.
- Complete advanced containment experiment extension project for the Czech Republic.

FY 1997 Planned Accomplishments - continued:

- Complete the Bulgarian VVER-1000 plant analyzer with the capability to simulate a full range of potential accidents.
- Provide all training workshops, seismic analyses, and maintenance training support requested by Bulgaria.
- Enhance U.S. lab and industry support of international nuclear safety centers through cooperative research and development projects..
- Participate in three to five nuclear export related missions, workshops, or seminars.
- Develop and maintain nuclear policy and market profiles.

Explanation of Funding Changes FY 1996 to FY 1997:

Funding in the amount of $15.4 million was received in late FY 1995 from U.S. AID and is being used for FY 1996 activities. An additional $15.4 million is anticipated from U.S. AID in FY 1996. These additional funds result in an effective budget of approximately $57 million for FY 1996. The increase in FY 1997 is primarily due to continuing the management and operational safety improvement projects, engineering and technology upgrades, and Chornobyl initiatives that were delayed due to lack of funding in FY 1996.

NUCLEAR SECURITY / RUSSIAN PRODUCTION REACTOR SHUTDOWN

PROGRAM MISSION

The mission of the Nuclear Security/Russian Production Reactor Shutdown program is to reduce the threats posed by continued operation of reactors that produce weapons materials, and to promote management practices that minimize the risks of proliferation of weapons-usable nuclear materials. Particular attention is paid to implementation of the U.S.-Russian agreement to cease the production of weapons grade plutonium. Additional program elements address spent fuel management, and the safety and nonproliferation concerns related to breeder reactors in the former Soviet Union..

The GOAL(S) of the Nuclear Security/Russian Production Reactor Shutdown program are to:

1. Ensure cessation of production of weapons-grade plutonium in the shortest time possible.

2. Support U.S. non-proliferation policy.

3. Address the safety and nonproliferation concerns related to breeder reactors in countries of the former Soviet Union.

4. Promote policies which reduce the need for reprocessing of nuclear fuel.

Major fissile materials processing and nuclear R&D sites in Russia.
Plotted on the map are plutonium production sites (triangles), nuclear weapons design laboratories (circles), uranium enrichment plants (asterisks), fuel fabrication facilities (squares) and major nuclear reactor institutes (diamonds). Boundary is that of the former Soviet Union.

The OBJECTIVES related to these goals are:

1. Prepare for conversion of Russia's production reactors to a mode that eliminates production of weapons-grade plutonium while still producing heat and electricity required by local communities, and identify long-term replacement power sources.

2. Engage in cooperative programs to address safety needs at breeder reactors in the former Soviet Union and promote their shutdown.

3. Develop spent fuel management plans to reduce the need for reprocessing in countries of the former Soviet Union.

PERFORMANCE MEASURES:

Performance measures for the Nuclear Security/Russian Production Reactor Shutdown program include:

1. Complete all necessary preparatory work to implement conversion of Russia's plutonium production reactors to a mode in which they produce do not produce weapons-grade plutonium.

2. Complete the effort to identify replacement power alternatives to substitute for operation of the production reactor.

3. Identification of alternatives to breeder reactors in former Soviet Union.

4. Introduction of spent fuel management plans that do not require reprocessing.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- First phase of feasibility study on fuel conversion demonstrates that conversion would be technically possible within three years, would eliminate the production of weapons grade plutonium, and would improve the safety of the reactors.
- First phase of nuclear replacement power option also completed.
- U.S. safety experts visited the Aqtau breeder reactor in Kazakhstan and Aqtau operators visited the United States.
- Cooperation began with the Russian regulatory body, Gosatomnadzor, on fuel cycle and research reactor safety.

PROGRAM FUNDING PROFILE

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Nuclear Security/Russian Production Reactor Shutdown	$ 0	$ 0	$ 0	$ 0	$ 6,000
TOTAL	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 6,000**

NUCLEAR SECURITY / RUSSIAN PRODUCTION REACTOR SHUTDOWN

PROGRAM FUNDING BY SITE

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Richland Operations Office					
Pacific Northwest Lab	$ 0	$ 0	$ 0	$ 0	$ 5,000
All Other Sites	0	0	0	0	1,000
TOTAL, Nuclear Security/Russian Production Reactor Shutdown	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 6,000**

NUCLEAR SECURITY / RUSSIAN PRODUCTION REACTOR SHUTDOWN

PROGRAM OBJECT CLASS SUMMARY

	FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997
25.2 Other services	$ 0	$ 0	$ 0	$ 0	$ 6,000
99.9 **TOTAL**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 6,000**

I. Mission Supporting Goals and Objectives

The U.S. is committed to ensuring the cessation of production of weapons grade plutonium. In Russia, this can be accomplished by converting the fuel in the production reactors so that they do not produce weapons-grade plutonium while producing heat and electricity. Such an effort will allow Russia the time needed to identify a replacement source for the heat and electricity produced by the reactors while still achieving an important nonproliferation objective.

The U.S. is also leading an effort to address the safety and nonproliferation concerns associated with breeder reactors in the former Soviet Union. Finally, in accordance with a U.S.-Russia agreement to address fuel cycle safety, NE will cooperate on safety at spent fuel storage facilities in Russia and on management practices that reduce or eliminate the need for reprocessing of spent fuel, a significant nonproliferation and environmental problem.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Preparatory work for conversion of Fuel in Russian Production Reactors and identifying replacement options	$ 0[1]	$ 0[1]	$2,500	$2,500	100
Expand Nuclear Safety and Nonproliferation Cooperation with International Agencies and Foreign Countries	0	0	1,000	1,000	100
Safety and Nonproliferation - Breeder Reactors	0	0	1,000	1,000	100
Spent Fuel Management	0	0	1,500	1,500	100
TOTAL, Nuclear Security/Russian Production Reactor Shutdown	**$ 0**	**$ 0**	**$ 6,000**	**$ 6,000**	**100**

[1] Activities funded by State Department Nonproliferation and Disarmament Funds, and prior year Department funds.

III. Performance Summary

FY 1995 Accomplishments:

- Initiated fossil replacement power feasibility studies, which is currently funded by the Trade and Development Agency (TDA).
- Initiated core fuel conversion safety analysis and conceptual design study .
- Initiated nuclear replacement power options study for Seversk and Zheleznogorsk
- Initiated safety cooperation dialogue with Indian Atomic Energy Regulatory Board.
- Supported U.S. mission to explore nuclear security issues at Aqtau breeder reactor in Kazakhstan.

FY 1996 Accomplishments:

- Complete Phase I fossil replacement power feasibility studies for Tomsk, Seversk and Zheleznogorsk
- Complete production reactor fuel conversion safety analysis and conceptual design study; initiate final design and infrastructure upgrades.
- Complete Russian production reactor nuclear replacement power feasibility study.
- Lead DOE participation in the G-7 Nuclear Safety Summit.
- Increase multilateral and bilateral cooperation with key international nuclear agencies.
- Increase nuclear safety dialogues with India, China, South Africa, Ghana, and other countries with nuclear safety concerns.
- Support initiation of nuclear safety and security programs at Aqtau in Kazakhstan.

FY 1997 Accomplishments:

- Initiate conversion of reactors to power-productivity mode.
- Complete fossil replacement power feasibility studies for Tomsk, Seversk and Zheleznogorsk, and establish financial institution interest.
- Increase multilateral cooperation with key international nuclear agencies.
- Increase nuclear safety dialogues with countries with nuclear safety concerns.
- Implement nuclear safety and security programs at Aqtau in Kazakhstan and breeder reactors in Russia.
- Develop spent fuel management plans not requiring reprocessing for selected countries of the former Soviet Union.

Explanation of Funding Changes FY 1996 to FY 1997:

Funding has increased in FY 1997 due to implementation of the nuclear safety and security programs at Aqtau in Kazakhstan, support of the replacement power system for Russian plutonium production reactors, and spent fuel management.

NAVAL REACTORS

PROGRAM MISSION

Naval Reactors is responsible for all aspects of Naval nuclear propulsion — from technology development through reactor operations to, ultimately, reactor plant disposal. The Program's efforts are critical to the continued success of over 120 reactors in operating submarines and surface ships, comprising over 40% of the Navy's warships, and to the New Attack Submarine class under development.

The GOALS of the Naval Reactors program are:

Provide the U.S. Navy with safe, long-lived, militarily-effective reactor plants in keeping with the Nation's defense requirements, and ensure their continued safe and reliable operation.

The OBJECTIVES related to these goals are:

- Contribute to National security by meeting the Navy's needs for advanced, long-lived reactor plants, and ensuring the viability of operating Naval nuclear reactors and their operators' proficiency, while meeting high safety and environmental standards.

- Evaluate and improve Naval nuclear reactors to maintain the safety, potency, and longevity of U.S. nuclear-powered warships.

In continuing and enhancing the Program policies and practices which have achieved a world-wide reputation for excellence and safety, the STRATEGIES employed to realize these goals and objectives are:

- Maintain an integrated, comprehensive, and far-sighted analytical, developmental and testing effort for existing and future reactor plants:

  — continuously test, verify, and refine reactor technology — and integrate new technologies and techniques into existing system and component designs — to improve overall reactor plant performance, reliability and longevity;
  — rigorously test materials, fuel, cores, components and systems;
  — develop simplified, more affordable reactors with improved power capabilities, increased endurance, and added dependability.

- Ensure continued technical excellence and high quality in all Naval Nuclear Propulsion Program work.

- Maintain essential excellence in safety and environmental protection vital to National and world-wide acceptance of U.S. nuclear-powered warship operations.

PROGRAM MISSION — NAVAL REACTORS (Cont'd)

- Maintain a quality industrial base to provide materials, fuel, components, and cores meeting Navy requirements.
- Maximize facility use and stress efficient use of personnel to ensure requirements are met at minimum cost.
- Ensure non-proliferation of Naval nuclear technology.

PERFORMANCE MEASURES:

Naval Reactors is principally a technology program in the business of power generation for a military application. The Program's far-sighted development effort ensures nuclear propulsion technology provides options to maintain/upgrade current capabilities as well as meet future threats. Work is integrated as advances in various functional disciplines coalesce into the technology applicable to a Naval nuclear plant. The presence of radiation dictates a careful, measured approach to developing nuclear technology, evolving needed components and systems, and implementing them into existing or future plant designs. Intricate engineering challenges and long lead time to fabricate the massive, complex components require many years before introduction into the fleet. Decades will pass before overall success can be assessed, from the time a technology is conceived, to its development and application in the fleet, to the end of a ship's lifetime. With this in mind, the following high-level success indicators are representative of the outputs/outcomes of Naval Reactors' work:

- The number of cumulative reactor-years of safe operations for all Naval nuclear reactors exceeded 4,500 in FY 1995, and is estimated at over 4,600 in FY 1996 and over 4,700 in FY 1997, demonstrating the Program's continued safety and technical excellence and resulting operational success of Naval nuclear warships.
- The number of reactor classes in service will remain steady at nine through FY 1996 and 1997, indicating Naval Reactors' continued ability to support diverse plant types and technologies.
- The cumulative percentage of New Attack Submarine plant development and testing work completed was 30% in FY 1995, and estimated to be 45% in FY 1996 and 60% in FY 1997.
- The utilization factor for land-based prototype plants, a measure of the prototypes' availability for scheduled testing, training, and servicing needs, exceeded 90% in FY 1995, and is estimated to be at least 90% in FY 1996 and 1997.
- Inactivation work on six shutdown test/r&d plants will continue, reflecting progress in executing safe and responsible environmental clean-up. Defueling will be performed on the D1G plant in FY 1996, and on the S5G plant in FY 1997.
- In FY 1995, no Naval Nuclear Propulsion Program personnel exceeded Federal limits for radiation exposure, and no significant findings resulted from environmental inspections by state and federal regulators; nor are any expected in FY 1996 or 1997, reflecting the continued outstanding environmental record of the Program.

PROGRAM MISSION — NAVAL REACTORS (Cont'd)

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- The Navy will continue to rely on nuclear-powered warships, which comprise over 40% of its major combatants. With their stealth, firepower, mission versatility, virtually unlimited high-speed endurance, and independence from logistics support, nuclear powered submarines and aircraft carriers are well-suited to rapid crisis response. Also, as long as strategic deterrence, power projection and sea control are a necessity, these highly-survivable ships will remain instrumental to National security.

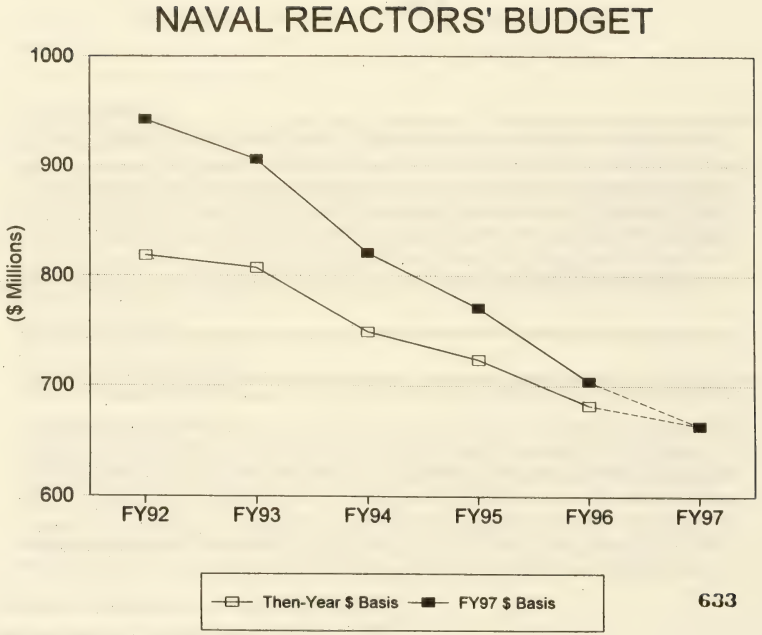
- Naval Reactors' comprehensive responsibility is a Program hallmark and a key to the ongoing success of nuclear-powered warships, which have steamed safely over 100 million miles. This environmental and safety record has endured over 40 years, and surpasses that of any other nuclear program in the world. Program success results from thorough development, testing, and analysis of cores, components, and systems; stringent quality standards and rigorous training; and detailed analysis of operating components/plants to verify expected performance. The former Soviet Navy's nuclear propulsion safety record offers a stark contrast — they suffered casualties because of risks and inadequacies the U.S. would not tolerate.

- Operating Naval nuclear plants are being extended beyond their design lifetimes, as the Navy decides to keep ships in service for up to 40-50 years vice original expectations of 20 years; this requires careful, extensive validation and improvement efforts to ensure these plants will perform safely and reliably through end of life.

- Initial testing of the advanced fleet reactor for the SEAWOLF Class attack submarine is going well as expected; the lead ship of the class is scheduled to go to sea in 1996.

- Continuing development efforts are yielding greater capabilities. Ongoing efforts in metallurgy, thermal hydraulics, manufacturing and chemical processes, physics, and nuclear design/analysis methods provide the base for future propulsion plant development and improvements to existing ones. Naval Reactors is investigating new structural materials, coolant chemistries, reactor plant arrangements, core configurations, manufacturing techniques, plant and facility monitoring equipment, and heat exchanging methods. Features sought are enhanced power density, longer life, decreased weight, increased resilience, reduced corrosion, ease of operation, and affordability. Major efforts for the near future include upgrades to existing components and equipment to help extend operating ship lifetimes and improve overall reactor plant performance, and development/testing of the next generation reactor components and systems for the Navy's New Attack Submarine class -- including the first true life-of-the-ship core, which will obviate the need for expensive refuelings, and the new concept steam generator, which should greatly reduce corrosion concerns.

- The Program's cost-saving initiatives include shutting down six of eight land-based prototype plants by FY 1996. Though creating a substantial initial cost savings, full realization of savings is dependent on completion of a substantial, multi-year inactivation/servicing effort on the shut-down plants.


NAVAL REACTORS' BUDGET
1000
900
800
700
600
($ Millions)
FY92
FY93
FY94
FY95
FY96
FY97
Then-Year $ Basis
FY97 $ Basis

NAVAL REACTORS

PROGRAM FUNDING PROFILE
($ in Thousands)

Subprogram	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Naval Reactors Development					
Reactor Technology & Analysis a/	$ 228,613	$ 327,851	- $ 115,000	$ 212,851	$ 192,000
Materials Development & Verification b/	100,000	0	+ $ 102,000	$ 102,000	110,000
Plant Technology c/	142,000	127,700	- $ 7,000	120,700	116,000
Evaluation & Servicing d/	154,000	135,517	+ $ 20,000	155,517	162,130
Capital Equipment	28,200	43,000		43,000	43,000
General Plant Projects	6,200	6,600		6,600	8,200
Subtotal, Operations & Maintenance	$ 659,013	$ 640,668	0	$ 640,668	$ 631,330
Construction	16,700	23,000		23,000	13,700
Subtotal, Naval Reactors Development	$ 675,713	$ 663,668		$ 663,668	$ 645,030
Program Direction	18,577	18,500	30	18,530	18,902
Enriched Materials Operating Expenses	$ 32,000	$ 0		$ 0	$ 0
Total, Naval Reactors	$ 726,290	$ 682,168	30	$ 682,198	$ 663,932

PROGRAM FUNDING PROFILE — NAVAL REACTORS (Cont'd)

Subprogram	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Use of Prior-Year Balances					
for Enriched Materials	-32,000	0	0	0	0
for Naval Reactors Development	-7,900	0	0	0	0
Elimination of Prefinancing	-11,935	0	0	0	0
TOTAL	$ 674,455	$ 682,168	30	$ 682,198	$ 663,932

Notes:
Beginning with FY 1997, the Naval Reactors Development operating categories are realigned to better reflect future activities, and to highlight the increasing importance of materials work as the age of the nuclear fleet increases.

a/ Formerly "Reactor Development".
b/ Formerly the Materials Development subcategory of Reactor Development.
c/ Formerly "Plant Development".
d/ Formerly "Reactor Operation & Evaluation".

Public Law Authorizations:
P.L. 83-703, "Atomic Energy Act of 1954"
E.O. 12344 (42 U.S.C. 7158), "Naval Nuclear Propulsion Program"

NAVAL REACTORS

PROGRAM FUNDING BY SITE
($ in Thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Bettis Atomic Power Lab	$ 341,100	$ 338,180		$ 338,180	$ 333,200
Idaho National Engineering Lab	45,400	51,000		51,000	48,800
Idaho Operations Office	870	870		870	900
Knolls Atomic Power Lab	288,285	271,868		271,868	261,700
Oak Ridge Operations Office	32,000	0		0	0
Pittsburgh Naval Reactors Office	6,147	5,550		5,550	5,600
Schenectady Naval Reactors Office	4,600	4,700		4,700	4,700
All Other	7,888	10,000	+ $ 30	10,030	9,032
Subtotal	$ 726,290	$ 682,168	+ $ 30	$ 682,198	$ 663,932
Adjustment	-51,835	0		0	0
TOTAL	$ 674,455	$ 682,168	+ $ 30	$ 682,198	$ 663,932

NAVAL REACTORS

PROGRAM OBJECT CLASS SUMMARY
($ in Thousands)

		FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
25.4	Operation and maintenance of facilities	32,000	0	0
25.5	Research and development contracts	624,613	591,068	580,130
31.0	Equipment	28,200	43,000	43,000
32.0	Land and structures	22,900	29,600	21,900
	Subtotal	$ 707,713	$ 663,668	$ 645,030
	Adjustment	-51,835	0	0
	Subtotal	$ 655,878	$ 663,668	$ 645,030

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NOTE: Because structure changes are at the same control level, the "Comp" and "Non-comp" are the same numbers.

NAVAL REACTORS DEVELOPMENT
REACTOR TECHNOLOGY & ANALYSIS

I. Mission Supporting Goals and Objectives

Ensures the continued safe and reliable operation of existing reactors, and develops new reactors with improved power capabilities, increased endurance, added reliability and greater simplification. This is accomplished by exploiting advances in nuclear physics, reactor configuration design, analytical modeling, and manufacturing and inspection methods. Physics efforts are aimed at gaining a better understanding of reactor behavior fundamentals and actual performance to support maximization of core life and reliability. Thermal hydraulic and mechanical analyses are conducted to evaluate reactor performance and to verify and improve the accuracy of computer models which enable reactor optimization through improved predictive capabilities and reduced margin contingencies. Environmental and radiological efforts are conducted for all operations to protect employees, the public and the environment.

II. Funding Schedule:

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request	$ Change	% Change
Reactor Technology and Analysis*	$ 228, 613*	$ 212,851*	$ 192,000	$ -20,851	-10%

* Previously the Reactor Development budget category. Beginning in FY 1997, materials-related work will be consolidated in the Materials Development & Verification category.

III. Performance Summary:

FY 1995 Accomplishments:

- Conducted thermal-hydraulic, structural and fluid mechanics, and heat conversion analyses to optimize reactor performance, including: initiated testing of a mechanical test cell identical in size and geometry to a fueled reactor cell to qualify an advanced core design for next generation reactor; tested prototypic test sections to improve flow and power distribution predictive capability; designed tests for computational fluid dynamics model and code development; and tested proof-of-principle in-core heat conversion modules to evaluate cycle efficiencies.

- Developed improved inspection equipment and procedures to increase quality and enhance core performance, such as replacing conventional film radiography with real-time radiography of fuel elements.

- Designed and tested control drive mechanisms and other reactor equipment for future core designs, including: delivering control drive mechanism test units, and initiating performance evaluations such as machine shock, functional, life, and thermal tests; and initiating final design and structural analysis validation of reactor equipment.

- Evaluated core designs and improved manufacturing processes to determine core performance and feasibility of longer life spans, including: establishing criteria for evaluating performance of the high-performance fleet core during acceptance testing, evaluating core end-of-life test data; and developing manufacturing process improvements emphasizing reduced fabrication time for fuel elements.

- Developed advanced physics computer codes to support new reactors having reduced uncertainty and longer lives, including: qualifying an advanced 3D calculational technique; continuing optimization of codes for massively parallel computers; and completing testing of the advanced fuel assembly and initiating fuel removal in the full-core physics experiment facility.

PERFORMANCE SUMMARY — REACTOR TECHNOLOGY & ANALYSIS (Cont'd)

- Performed nuclear and physics analyses to ensure efficient operation and maximize core lifetime and power, including: initiating operational physics testing on the advanced fleet reactor prototype core to predict beginning-of-life physics and criticality parameters for the shipboard reactor, and developing end-of-plant-life physics tests for the S5G Prototype.

FY 1996 Accomplishments (to date and planned):

- Conduct engineering analyses to develop and qualify improved core and reactor component designs, including: flow testing of the next generation reactor mechanical test cell, initiating final testing of prototypic test sections to support improved flow and power distribution models; computational fluid dynamics code development and code validation; testing a modified hydraulic design and evaluating applications; and evaluating core design for increased heat capability.

- Evaluate upgrades to inspection equipment including assessing electromagnetic acoustic transducers for flaw detection in welds.

- Analyze and test improved reactor equipment and control drive mechanisms including functional, life, and thermal tests on control drive mechanism test units.

- Develop, test and evaluate core designs and manufacturing processes to confirm satisfactory performance through end of life and extend life span, including: establishing adequacy of high-performance fleet core performance based on post-acceptance test data; evaluating S1C end-of-life performance test data; and evaluating high-temperature fuel system integration into reactor design.

- Develop, enhance, and validate via operating data, various physics computer codes, including: qualifying computer programs to improve the prediction of reactor operational transients; establishing initial computational capabilities and benchmarks for advanced supercomputers; and completing removal and shipment of fuel from the full-core physics experiment facility.

- Conduct nuclear analyses and physics testing to ensure efficient fuel loading and utilization, and maximize core lifetimes and power, including: analyzing results of beginning-of-life advanced fleet reactor prototype physics testing to demonstrate the core is operating as designed; analyzing S5G end-of-plant-life prototype test results; and generating a nuclear design model to follow advanced fleet reactor prototype core depletion.

FY 1997 Planned Accomplishments:

- Conduct thermal-hydraulic, structural and fluid mechanics, and heat conversion analyses to advance reactor design, improve performance, and allow less-restrictive operating procedures, including: shock and vibration testing of the next generation reactor mechanical test cell; final testing of prototypic test section for flow and power distribution; validating and qualifying an advanced fluid dynamics code; evaluating improvements to enhance core power capabilities based on a modified hydraulic design; and evaluating concepts for higher core heat capability.

- Assess improved inspection procedures to reduce costs and ensure quality.

- Evaluate performance of control rod drive mechanisms and reactor equipment, including: establishing test limits for control drive mechanisms; performing shock analyses; and developing improved techniques for predicting and analyzing dynamic structural load impacts.

PERFORMANCE SUMMARY — REACTOR TECHNOLOGY & ANALYSIS (Cont'd)

- Analyze, test and evolve core designs and manufacturing processes to validate performance and obtain longer life spans, including: initiating analysis to validate advanced fleet reactor prototype operation to end of reactor life; developing improved models of high-temperature fuel system performance; and applying an improved fabrication process to fuel test specimens.

- Develop and enhance advanced computer programs for reactor physics and other nuclear design applications to verify reactor performance and design new, longer-lived reactors with reduced uncertainties, including: automating a common procedure for both Monte Carlo and diffusion theory computations; improving the precision of nuclear design/analysis programs through use of advanced computers; and laying-up the full-core physics experiment facility in preparation for decommissioning.

- Conduct nuclear and physics testing to maximize core lifetime and power and determine optimal operating characteristics, including: completing development of an advanced fleet reactor nuclear design model.

Explanation of Funding Changes FY 1996 to FY 1997:
The $20,851,000 decrease reflects progress on next generation reactor design.

NAVAL REACTORS DEVELOPMENT
MATERIALS DEVELOPMENT & VERIFICATION

I. Mission Supporting Goals and Objectives

Develop, qualify, and test nuclear fuel, cladding, structural, and component materials suitable for use in the demanding environment of an operating nuclear plant. Materials must be capable of maintaining their structural and mechanical integrity over decades in a high temperature, high pressure, corrosive environment. Attention is given to testing and evaluating materials in use to verify acceptability for safe operation over a component's lifetime, to developing and applying new testing methods and insights, and to extending materials in use to new applications. Work is also aimed at the development and qualification of materials with improved mechanical and physical traits - and increased corrosion resistance which will improve plant integrity and performance and open new design opportunities. Quality control is an inherent part of all materials work, and manufacturing processes are developed and refined to ensure materials are produced efficiently and to stringent specifications.

II. Funding Schedule:

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request	$ Change	% Change
Materials Development and Verification*	$ 100,000*	$ 102,000*	$ 110,000	$ +8,000	+ 8%

* Previously the Material Development subcategory of the Reactor Development category. Beginning in FY 1997, materials work is identified as a separate category combining related efforts from Reactor and Plant Development. This change reflects the increased emphasis on this work —as the expected lifetime of the nuclear fleet increases to up to 50 years for some ships, verification of in-service materials and development of more corrosion and stress-resistant materials is paramount to ensure safe operation over component lifetime.

III. Performance Summary:

FY 1995 Accomplishments:

- Developed improved core and core structural materials and improved fabrication processes, including: refining a new fuel manufacturing process with reduced cost and environmental concerns; initiating a testing program to verify improved corrosion resistance of materials; demonstrating a modified thread forming process for core fastener materials; and developing improvements to high temperature materials such as silicon carbides so they will perform adequately in a reactor environment.

- Improved understanding of plant component material performance to support assurance of dependability, including: developed stress corrosion cracking analytical models; conducted tests to confirm improved stress corrosion cracking behavior of materials; and conducted material property and metallographic examinations on samples removed from operating components.

- Maximized advanced test reactor availability to irradiate material test specimens, allowing reduced number of test loops by expediting specimen installation and removal and minimizing associated shutdown time; prepared test trains for irradiation and evaluated information obtained to update databases for predicting material performance in operating reactors.

FY 1996 Accomplishments (to date and planned):

- Continue development efforts for improved fuel, cladding, structural materials and fabrication processes including: implementing a new process for manufacturing Naval nuclear fuel; completing testing necessary to qualify materials for fastener applications with improved stress corrosion cracking behavior; and testing and evaluating materials for application in higher temperature reactors.

PERFORMANCE SUMMARY — MATERIALS DEVELOPMENT & VERIFICATION (Cont'd)

- Conduct testing and evaluation of plant materials to characterize effects of operating environment and to support lifetime reliability decisions, including: developing predictive models and conducting confirmatory testing to determine factors contributing to stress corrosion cracking; completing an assessment of the significance of environmentally assisted fatigue cracking for reactor vessels; and performing material examinations of components removed from operating plants to obtain performance data.

- Continue prototypic irradiations examination and testing in the advanced test reactor to ensure material integrity in the harsh reactor environment.

FY 1997 Planned Accomplishments:

- Develop improved core and core structural materials and fabrication processes, including: updating corrosion models; conducting post-irradiation crack growth rate testing of materials to support new stress corrosion cracking predictive models; and furthering development of structural materials and fuel for higher temperature applications.

- Improve plant material performance and performance predictive capabilities by actions such as: determining and characterizing fundamental factors contributing to stress corrosion cracking, and conducting destructive and non-destructive examinations such as scanning electron microscopy and energy dispersive x-ray evaluation of samples from components removed from operating reactor plants.

- Prepare test trains and irradiate material test specimens to duplicate effects of a reactor environment; evaluate irradiations effects on materials to increase understanding of material performance and verify safe application of materials over reactor design lifetime.

Explanation of Funding Changes FY 1996 to FY 1997:
The $8,000,000 increase reflects increased materials analysis and testing needed to support the long lifetimes of Navy's ships.

NAVAL REACTORS DEVELOPMENT
PLANT TECHNOLOGY

I. Mission Supporting Goals and Objectives

Development and analysis of equipment and systems which transfer, convert, store, control and measure power created by the reactor. Work aims at maximizing plant performance and minimizing maintenance by evaluating existing components, integrating new technologies into current and new equipment designs, and proving concepts through testing. Key areas include conventional and new concept steam generator technology and testing; instrumentation and control; plant configuration and component development, verification and testing; and plant performance and safety analysis.

II. Funding Schedule:

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request	$ Change	% Change
Plant Technology*	$ 142,000*	$ 120,700*	$ 116,000	$ - 4,700	- 4%

* Previously the Plant Development budget category.

III. Performance Summary:

FY 1995 Accomplishments:

- Developed and improved steam generator technology to reduce maintenance costs, including: designed a test assembly for chemistry testing; performed qualification and prototype tests on corrosion-inhibiting alternate steam generator chemistries; conducted transient testing of small-scale steam generator to provide feedback for incorporation into full-size designs; fabricated heat exchanger piece parts and began fabrication of the new concept steam generator manufacturing demonstration unit.

- Developed and tested new instrumentation and control (I&C), including: tested prototype standardized I&C concepts to determine feasibility; and built and tested advanced solid-state switching devices.

- Designed, developed, and verified reactor plant and component designs to reduce complexities, simplify maintenance and lower costs, including: performed pressure and shock analysis for support structures and completed next generation reactor component drawings; built and tested electrical generator modules and evaluated cycle efficiencies; performed advanced fleet reactor plant flow testing to evaluate any problems encountered during initial startup.

- Performed reactor plant analyses to assure safe operation and lower costs.

FY 1996 Accomplishments (to date and planned):

- Continue steam generator technology improvements including: begin corrosion and deposition testing of test assemblies in different chemistries; perform steady-state testing of the high power test unit over a range of operating conditions, and incorporate changes into analysis tools for full-size unit design as necessary; fabricate new concept steam generator manufacturing demonstration unit.

- Improve reactor plant I&C and power generation applications, including: develop detailed standardized I&C design to replace aging equipment; build/test new solid-state electronic devices and develop design improvements.

PERFORMANCE SUMMARY — PLANT TECHNOLOGY (Cont'd)

- Improve components and reactor plant designs, including: perform detailed analyses and finalize next generation reactor component features to permit fabrication; evaluate electrical generator modules; conduct plant component flow testing to evaluate performance.

- Conduct reactor plant protection and safe operation analysis.

FY 1997 Planned Accomplishments:

- Improve steam generator technology, including: begin large-scale steam generator testing to qualify thermal hydraulic analysis models; and assemble new concept steam generator manufacturing demonstration unit.

- Develop I&C emphasizing advanced generic designs, including: begin testing detailed standardized I&C design for performance; and test scaled versions of solid-state electronic devices and incorporate lessons learned.

- Carry out component and reactor plant design and testing, including: resolve design issues and develop changes identified during fabrication of new plant test components and perform qualification testing; develop prototypical testing for electrical generator modules to demonstrate technology scalability; conduct plant component flow testing to evaluate performance.

- Analyze and test reactor plant operation and protection systems.

Explanation of Funding Changes FY 1996 to FY 1997:
The $4,700,000 decrease reflects progress on new plant development efforts.

NAVAL REACTORS DEVELOPMENT
EVALUATION & SERVICING

I. Mission Supporting Goals and Objectives

Operate, maintain and service the Program's land-based prototype Naval nuclear propulsion plants and the advanced test reactor plant. Testing of materials, components, cores, and systems in these plants provides important technical data and experience under actual operating conditions. Increased sophistication in computer modeling of reactor plant conditions, growing accumulation of operational data, and reduced need for training of Navy reactor plant operators have enabled shut down of five of eight prototype plants with a sixth to be shutdown in 1996 resulting in substantial initial cost savings; full realization of savings is dependent on defueling and long-term inactivation efforts currently underway, which will leave these facilities in an environmentally-benign state. Evaluation and servicing work also encompasses maintaining environmental quality at all Naval Reactors sites and examination of expended reactor cores. These examinations provide end-of-life characteristics and validate calculated predictions. Information obtained provides valuable feedback for improving fleet operations and designing new cores.

II. Funding Schedule:

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request	$ Change	% Change
Evaluation & Servicing*	$ 154,000*	$ 155,517*	$ 162,130**	$ +6,613	+4%

* Previously the Reactor Operation & Evaluation category. **Other evaluation related work previously in other Naval Reactors Development categories, such as advanced test reactor operations and expended core examinations, has been consolidated into Evaluation & Servicing.

III. Performance Summary:

FY 1995 Accomplishments:

- Received, unloaded and examined spent fuel from the S3G prototype.
- Completed defueling of the S1C prototype and began disassembly of non reactor compartment structures at the Windsor site.
- Operated the S5G, MARF, S8G, and D1G prototypes for testing and training at a utilization factor greater than 90%.
- Performed an end-of life test program and final reactor shutdown on the S5G prototype.
- Depleted the developmental materials core in the MARF prototype.
- Depleted the advanced fleet reactor core in the S8G prototype.

PERFORMANCE SUMMARY — EVALUATION & SERVICING (Cont'd)

FY 1996 Accomplishments (to date and planned):

- Receive, unload and examine spent fuel from the S1C prototype.
- Initiate defueling preparations for the A1W-B prototype plant.
- Perform end-of-life test program, final reactor shutdown, and begin defueling at the D1G prototype.
- Operate the MARF and S8G prototypes to deplete their test cores and for training at a utilization factor of greater than 90%
- Perform S3G off hull systems and engine room removal.
- Continue dismantlement of non-reactor compartment structures at the Windsor site.

FY 1997 Planned Accomplishments:

- Defuel the A1W-B prototype.
- Operate the MARF and S8G prototypes for testing at a utilization factor of greater than 90%, and continue efficient operation of the advanced test reactor.
- Continue depleting the test cores in the MARF and S8G prototypes.
- Perform S1C off hull system and building removal and engine room structure removal.
- Begin reactor compartment dismantlement of the S1C prototype.
- Develop conceptual design for an Expended Core Facility dry storage container loading station.
- Complete defueling of the D1G prototype and begin disassembly of non reactor compartment structures.
- Conduct dismantlement of non reactor compartment structures at the S3G prototype.

Explanation of Funding Changes FY 1996 to FY 1997:
The $6,613,000 growth reflects increased prototype plant inactivation efforts.

Major Issues:
The reactor plant inactivation activities funded in this category are vital to accomplish environmental remediation, obtain important reactor core performance data, and reduce caretaker costs. The FY 97 budget request will support partial accomplishment of this work. This level of funding will not support the full scope of inactivation work.

NAVAL REACTORS

PROGRAM DIRECTION OBJECT CLASS SUMMARY
($ in Thousands)

		FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Personnel Compensation:				
11.1	Full-time permanent	$ 14,400	$ 13,800	$ 14,250
11.9	Total Personnel Compensation	$ 14,400	$ 13,800	$ 14,250
12.1	Civilian personnel benefits	$ 2,247	$ 2,870	$ 2,870
21.0	Travel and transportation of persons	690	690	690
25.2	Other services	1,240	1,170	1,092
	Subtotal	$ 18,577	$18,530	$ 18,902

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NOTE: Because structure changes are at the same control level, the "Comp" and "Non-comp" are the same numbers.

PROGRAM DIRECTION

I. Mission Supporting Goals and Objectives

Funds salaries, benefits, travel and expenses for the 209 full-time Federal employees at the Naval Reactors Headquarters, Pittsburgh and Schenectady Naval Reactors, and Idaho Operations Offices who manage the Naval Nuclear Propulsion Program.

Due to the critical nature of the work, Naval Reactors is a centrally-managed organization. This places a heavy burden on the Federal employees who oversee and set policies/procedures for ships, shipyards, contractors, and the Bettis and Knolls Atomic Power Laboratories, as well as interface with other DOE offices and local, state, and Federal regulatory agencies. 10 FTEs at the Idaho Operations Office oversee operation of the advanced test reactor, which Naval Reactors uses for materials irradiation and testing.

II. Funding Schedule:

	FY 1995 Adjusted	FY 1996 Appropriation	Adjustment	FY 1996 Adjusted	FY 1997 Request
Headquarters					
Salary and Benefits	6,330	6,890		6,800	7,090
Travel	460	480		480	480
Other Related Expenses	170	100	+ $ 30	130	132
Total	6,960	7,380	+ $ 30	7,410	7,702
Full Time Equivalents	59	58		58	58
Average	118	127		128	133
Pittsburgh Naval Reactors					
Salary and Benefits	5,397	4,820		4,820	4,870
Travel	100	100		100	100
Other Related Expenses	650	630		630	630
Total	6,147	5,550		5,550	5,600
Full Time Equivalents	78	75		75	74
Average	79	74		74	76
Schenectady Naval Reactors					
Salary and Benefits	4,120	4,220		4,220	4,300
Travel	80	80		80	80
Other Related Expenses	400	400		400	320
Total	4,600	4,700		4,700	4,700
Full Time Equivalents	69	68		68	67
Average	67	69		69	70

FUNDING SCHEDULE — PROGRAM DIRECTION (Cont'd)

Idaho Operations Office					
Salary and Benefits	800	830		830	860
Travel	50	30		30	30
Other Related Expenses	20	10		10	10
Total	870	870		870	900
Full Time Equivalents	10	10		10	10
Average	87	87		87	90
Total Naval Reactors Program					
Salary and Benefits	16,647	16,670		16,670	17,120
Travel	690	690		690	690
Other Related Expenses	1,240	1,140	+ $ 30	1,170	1,092
Total	18,577	18,500	+ $ 30	18,530	18,902
Full Time Equivalents	216	211		211	209
Average	86	88		88	90

III. Performance Summary:

FY 1995 Measurable Performance Activities:
Continued to successfully direct technical work, provide management/oversight of laboratories and facilities, and ensure safe and reliable operations of Naval nuclear plants and the advanced test reactor. Reduced by 3 FTEs compared to previous FY 1995 allocation.

FY 1996 Measurable Performance Activities:
Continue as in FY 1995. Reduced an additional 5 FTEs compared to FY 1995.

FY 1997 Measurable Performance Activities:
Continue as in FY 1996. Reduced an additional 2 FTEs compared to FY 1996.

IV. Explanation of Funding Changes FY 1996 to FY 1997:
Increase of $372,000 is due to impact of inflation, employee buyouts, and distribution of the Working Capital Fund.

V. Explanation of Average FTE Costs:
Headquarters: Increase in FTE costs reflects impact of inflation, employee buyouts and distribution of the Working Capital Fund.
Schenectady Naval Reactors: Increase in FTE costs reflects impact of inflation and employee buyouts.
Pittsburgh Naval Reactors: Increase in FTE costs reflects impact of inflation and employee buyouts.

NAVAL REACTORS DEVELOPMENT
CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY
($ in thousands)

Capital Operating Expenses	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 28,200	$ 43,000	$ 43,000	$ 0	0%
General Plant Projects	6,200	6,600	8,200	+1,600	+24%*

Construction Project Summary

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Unapprop. Balance
97-D-201	ATR Secondary Coolant System Refurbishment, INEL	$ 5,000	$ 0	$ 0	$ 0	$ 400	$ 4,600
95-D-200	Laboratory Systems and Hot Cell Upgrades, Various Locations	19,600	0	2,400	11,300	4,800	1,100
95-D-201	ATR Radioactive Waste System Upgrades, INEL	6,000	0	700	4,800	500	0
93-D-200	Engineering Services Facilities, Knolls **	19,500	7,700	7,900	3,900	0	0
92-D-200	Laboratories Facilities Upgrade, Various Locations	18,000	15,200	2,800	0	0	0
90-N-102	Expended Core Facility Dry Cell, Bettis	48,646	36,146	0	3,000	8,000	1,500
81-T-112	Modifications & Additions to Prototype Facilities, Knolls **	139,900	137,000	2,900	0	0	0
Total Naval Reactors Major Construction		$ 256,646	$ 196,046	$ 16,700	$ 23,000	$ 13,700	$ 7,200

* The increase in General Plant Projects corresponds to a decrease in Major Construction due to facility additions and upgrades which prior to the increase in GPP threshold from $1.2M to $2.0M would have been funded as Major Construction.

** Favorable construction bids allowed for a $1,500,000 reduction to the total estimated cost for the Engineering Services Facilities, Knolls, 93-D-200. These funds were reprogrammed to Modifications & Additions to Prototype Facilities, Knolls, 81-T-112.

CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY (Cont'd)

Detailed Breakouts

Major Items of Equipment	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request
Control Drive Mechanism Test Facility	$ 4,100	$ 3,800	$ 300		
Prototype Safety Systems	$ 9,300	$ 7,800	$ 1,500		
Material Manufacturing Equipment Upgrade	$ 1,500	$ 500	$ 1,000		
Supercomputer Memory/Storage Upgrade	$ 2,000		$ 2,000		
ATR-ECF Transfer Casks	$ 7,600	$ 1,000	$ 1,000	$ 900	$ 4,100
Corrosion/Chemistry Test Equipment Upgrade	$ 6,800		$ 1,000	$ 3,300	$ 1,400
Scalable Parallel Supercomputer System	$ 10,000			$ 10,000	
Telephone Switching System	$ 2,200			$ 2,200	
Next Generation Scalable Supercomputers	$ 8,000				$ 8,000
General Computer/Storage Upgrade	$ 2,000				$ 2,000
Post-Irradiations Evaluation Laboratory	$ 7,400				$ 1,400
Thermal-Hydraulic Test Equipment	$ 2,900				$ 2,000
Component Performance Test Facility Upgrade	$ 2,400				$ 1,200

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DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

NAVAL REACTORS

PROJECT DATA SHEETS

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Naval Reactors Development

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OTHER DEFENSE ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

NAVAL REACTORS DEVELOPMENT

1. Project Title and Location: Advanced Test Reactor Secondary Coolant System Refurbishment
Idaho National Engineering
Laboratory, Idaho

2a. Project No. 97-D-201
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1995

3b. A-E Work (Titles I & II) Duration: 9 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- N/A
Total Project Cost (TPC) -- N/A

4a. Date Physical Construction Starts: 3rd Qtr. FY 1997

4b. Date Construction Ends: 4th Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $5,000
TPC -- $5,554

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1997	$ 400	$0	$ 400	$ 327
1998	4,100	0	4,100	3,774
1999	500	0	500	899

8. Project Description, Justification and Scope

This effort upgrades major portions of the secondary coolant system which removes excess heat generated by the advanced test reactor.

The project scope includes replacing and refurbishing buried piping systems and cooling tower piping, structure and heat transfer material to improve the overall efficiency of the system. Examples of work include the following:

- Replacement of damaged wood structure members;
- replacement of water control valves; and
- replace damaged heat transfer materials

The secondary coolant system has deteriorated due to corrosion, age, and leaks. The cooling tower upper framing and fan deck were replaced in 1992; however, numerous problem areas remain which affect tower control, thermal efficiency, and life expectancy. Refurbishment of the system is necessary to provide a 20 year life extension of the tower and related piping system to support continuous operation of the reactor. Through FY 1997, the project is expected to be 10% complete.

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1. Project Title and Location: Advanced Test Reactor Secondary Coolant System Refurbishment
Idaho National Engineering
Laboratory, Idaho (Continued)

2a. Project No. 97-D-201
2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 772
1. Engineering design and inspection at approximately 10 percent of construction costs	$ 265	
2. Construction management	219	
3. Project management	288	
b. Land and land rights		0
c. Construction costs		$ 2,451
1. Improvements to land		
2. Buildings		
3. Other structures	2,451	
4. Utilities		
5. Special Facilities		
d. Standard Equipment		0
e. Major computer items		950
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		$ 4,173
Subtotal		827
h. Contingencies at approximately 20 percent of above costs		$ 5,000
i. Total line item cost (Section 12. a. 1. (a))		0
j. Non-Federal Contribution		$ 5,000
Net Federal total estimated cost (TEC)		

10. Method of Performance

Design and inspection will be performed by Lockheed Idaho Technologies Company and by the operation contractor. Construction will be performed under subcontracts awarded on the basis of competitive bidding.

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1. Project Title and Location: Advanced Test Reactor Secondary Coolant System Refurbishment
Idaho National Engineering
Laboratory, Idaho (Continued)

2a. Project No. 97-D-201
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1997	FY 1998	FY 1999	Total
a. Total project costs					
1. Total facility costs					
(a) Line item (Section 10. i.)	$ 0	$ 327	$ 3,774	$ 899	$ 5,000
(b) Oper. Exp. funded equipment	0	0	0	0	0
(c) Inventories	0	0	50	0	50
Total facility cost (federal and Non-federal)	$ 0	$ 327	$ 3,824	$ 899	$ 5,050
2. Other project costs					
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	68	0	0	0	68
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0
(d) NEPA Documentation costs	29	0	0	0	29
(e) Other project-related costs	42	39	96	230	407
Total other project costs	$ 139	$ 39	$ 96	$ 230	$ 504
Total project cost	$ 139	$ 366	$ 3,920	$ 1,129	$ 5,554
(f) Non-Federal contribution	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 139	$ 366	$ 3,920	$ 1,129	$ 5,554

b. Related annual funding (estimated life of project-- 20 years)	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	4
3. Programmatic operating expenses directly related to the facility	0
4. Capital Equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual funding	$ 4

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1. Project Title and Location: Advanced Test Reactor Secondary Coolant System Refurbishment
Idaho National Engineering
Laboratory, Idaho (Continued)

2a. Project No. 97-D-201
2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item -- Narrative not required.
(b) Expense-funded equipment -- Narrative not required.
(c) Inventories -- $50K will be spent for procurement of spare parts.

2. Other project costs
(a) R&D necessary to complete to complete construction -- Narrative not required.
(b) Conceptual Design Costs -- $68K was spent in FY 1994 and 1995 for development of the Functional and Operational Requirements (F&ORs), conceptual design and a value engineering study.
(c) D&D -- Narrative not required.
(d) NEPA documentation costs -- $29K will be spent FY 1995 and FY 1996 to prepare NEPA documentation for the project.
(e) Other project-related costs -- $42K will be spent in FY 1996 to prepare Project Management Plan, Quality Program Plan, and Configuration Management Plan. $865K will be spent in FY's 1997-99 to prepare plant operating documentation, testing, facility interface drawing as built, facility configuration change control documentation, and readiness reviews.
(f) Non-Federal Contributions -- Narrative not required.

b. Related annual funding
1. Total Facility operating costs -- Narrative not required.
2. Facility maintenance and repair costs -- $4K will be spent annually for preventative maintenance and instrument calibration.
3. Programmatic operating expenses directly related to the facility -- N/A
4. Capital Equipment not related to construction but related to programmatic effort in the facility -- N/A
5. GPP or other construction related to the programmatic effort in the facility -- N/A
6. Utility costs -- Narrative not required.
7. Other costs -- N/A

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NAVAL REACTORS DEVELOPMENT

1. Project Title and Location: Laboratory Systems and Hot Cell Upgrades
Bettis Atomic Power Laboratory
Idaho Falls, Idaho and West Mifflin, Pennsylvania

2a. Project No. 95-D-200
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1995

3b. A-E Work (Titles I & II) Duration: 27 Months

4a. Date Physical Construction Starts: 1st Qtr. FY 1996

4b. Date Construction Ends: 4th Qtr. FY 1998

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $19,600
Total Project Cost (TPC) -- $23,650

6. Current Cost Estimate:
TEC -- $19,600
TPC -- $23,650

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1995	$2,400	$0	$2,400	$1,292
1996	11,300	0	11,300	6,200
1997	4,800	0	4,800	6,000
1998	1,100	0	1,100	6,108

8. Project Description, Justification and Scope

Modification and upgrading of various Bettis Atomic Power Laboratory support systems and facilities, including the following: hot cell refurbishment; shock test facility construction; facility modifications; and building and site renovations or reconfigurations.

Upgrading of aging facilities at the Bettis Atomic Power Laboratory sites. Most of the buildings and infrastructure date to the 1950's and require upgrading to keep up with technological advancements and to serve their function. The following principal areas are being renovated:

- renovation of hot cells and their associated ventilation and safety systems to curtail increasing maintenance costs as the cells age, and to reduce worker radiation exposure by eliminating the need to enter the hot cells for most repairs. The hot cells have not been refurbished since 1971;
- construction of a shock and vibration test facility to provide a test platform to perform low frequency shock qualification testing. This facility will significantly reduce costs associated with the qualification of plant components.
- renovations to some existing laboratory spaces to meet evolving Federal and State standards;

1. Project Title and Location: Laboratory Systems and Hot Cell Upgrades
Bettis Atomic Power Laboratory
Idaho Falls, Idaho and West Mifflin, Pennsylvania (Continued)

2a. Project No. 95-D-200
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

- new windows and air conditioning systems for older buildings to achieve federal energy conservation goals;

Through FY 1997, 80% of the project is expected to be complete.

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 5,200
1. Engineering design and inspection at approximately 28 percent of construction costs a/	$3,200	
2. Construction Management Costs	1,340	
2. Project management at 6 percent of construction costs	660	
b. Land and land rights		0
c. Construction costs		$ 11,400
1. Improvements to land	0	
2. Buildings	8,200	
3. Utilities	200	
4. Special Facilities	3,000	
d. Standard Equipment		300
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		100
Subtotal		$17,000
h. Contingencies at approximately 15 percent of above costs		2,600
i. Total line item cost (Section 12. a. 1. (a))		$19,600
j. Non-Federal Contribution		0
Net Federal total estimated cost (TEC)		$19,600

NOTE: a/ Includes construction follow and equipment installation engineering costs related to the hot cell upgrades. The percent of construction and equipment value is high because of the significant Bettis design and inspection required for this unique facility.

10. Method of Performance

Design will be accomplished under a negotiated Engineering Services Subcontract. Construction and procurement of equipment will be via fixed price contracts awarded on the basis of competitive bidding or by site operating contractor. Title III inspection will be conducted by operating contractor surveillance and supported for some items by the engineering services subcontractor.

1. Project Title and Location: Laboratory Systems and Hot Cell Upgrades
Bettis Atomic Power Laboratory
Idaho Falls, Idaho and West Mifflin, Pennsylvania (Continued)

2a. Project No. 95-D-200
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 10. i.)	$ 0	$ 1,292	$ 6,200	$ 6,000	$ 6,108	$19,600
(b) Oper. Exp. funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility cost (federal and Non-federal	$ 0	$ 1,292	$ 6,200	$ 6,000	$ 6,108	$19,600
2. Other project costs						
(a) R&D necessary to complete project	$ 50	$ 100	$ 0	$ 0	$ 0	$ 150
(b) Conceptual design costs	390	0	10	0	0	400
(c) Other project-related costs	500	1,270	1,180	550	0	3,500
Total other project costs	$ 940	$ 1,370	$ 1,190	$ 550	$ 0	$ 4,050
Total project cost	$ 940	$ 2,662	$ 7,390	$ 6,550	$ 6,108	$23,650
(f) Non-Federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 940	$ 2,662	$ 7,390	$ 6,550	$ 6,108	$23,650

b. Related annual funding (estimated life of project-- 40 years)	
1. Facility operating costs	$ 100
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital Equipment not related to construction but related to the programmatic effort in the facility	50
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual funding	$ 150

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1. Project Title and Location: Laboratory Systems and Hot Cell Upgrades
Bettis Atomic Power Laboratory
Idaho Falls, Idaho and West Mifflin, Pennsylvania (Continued)

2a. Project No. 95-D-200
2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item -- Narrative not required.
   (b) PE&D -- None.
   (c) Expense-funded equipment -- None.
   (d) Inventories -- None.
   (e) Non-Federal Contribution -- None.
2. Other project costs
   (a) R&D necessary to complete to complete construction -- $150,000 needed for overhead manipulator power and control system development.
   (b) Conceptual design costs -- Conceptual design costs are estimated at $400,000.
   (c) Other project related funding -- Decontamination will cost $3,400,000 and mockup skills training will cost $100,000.

b. Related annual funding (estimated life of project-- 40 years)

1. Facility operating costs -- Annual operating costs to maintain components such as valves, pumps, motors, and filters.
2. Facility maintenance and repair costs -- None.
3. Programmatic operating expenses directly related to the facility -- None.
4. Capital Equipment not related to construction but related to the programmatic effort in the facility -- Estimate includes replacement of operating equipment on a 15 year cycle.
5. GPP or other construction related to the programmatic effort in the facility -- None.
6. Utility costs -- None.
7. Other costs -- None.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OTHER DEFENSE ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

NAVAL REACTORS DEVELOPMENT

1. Project Title and Location: Advanced Test Reactor Radioactive Waste System Upgrades
Idaho National Engineering
Laboratory, Idaho

2a. Project No. 95-D-201
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1995

3b. A-E Work (Titles I & II) Duration: 9 Months

4a. Date Physical Construction Starts: 4th Qtr. FY 1995

4b. Date Construction Ends: 4th Qtr. FY 1997

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $6,000
Total Project Cost (TPC) -- $6,691

6. Current Cost Estimate:
TEC -- $6,000
TPC -- $6,805

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1995	$ 700	$0	$ 700	$ 334
1996	4,800	0	4,800	4,386
1997	500	0	500	1,280

8. Project Description, Justification and Scope

This effort upgrades key portions of the radioactive waste system which handles liquid radioactive effluent and radioactively contaminated resins from the Advanced Test Reactor facility.

The current radioactive waste system, consisting of underground single wall piping and storage tanks, has no capability to monitor system integrity. Several storage tanks are suspected of having leaked and have been removed from service. This upgrade ensures system integrity by providing the ability to monitor for leaks, increase storage capacity, and provide waste sampling and chemical mixing capability before shipment.

This project will also provide an enclosed, heated, all-weather truck transfer facility for radioactive liquid waste and resin transfer. Resin transfer is currently conducted at two separate transfer stations located outside the Advanced Test Reactor building. Since these stations are outdoors and unprotected, they create a risk of freezing and accidental leaks or spills potentially resulting in operational shutdown. Although some temporary actions have been taken, the remaining risks warrant the need to move this operation into an enclosed facility permitting year-round use with controlled effluent discharge. Through FY 1997, the project is expected to be 100% complete.

1. Project Title and Location: Advanced Test Reactor Radioactive Waste System Upgrades
Idaho National Engineering
Laboratory, Idaho (Continued)

2a. Project No. 95-D-201
2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 1,740
1. Engineering design and inspection at approximately 18 percent of construction costs	$ 500	
2. Construction management	675	
3. Project management	565	
b. Land and land rights		0
c. Construction costs		$ 2,730
1. Improvements to land	26	
2. Buildings	1,968	
3. Other structures	128	
4. Utilities	608	
5. Special Facilities		
d. Standard Equipment		47
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 4,517
h. Contingencies at approximately 33 percent of above costs		1,483
i. Total line item cost (Section 12. a. 1. (a))		$ 6,000
j. Non-Federal Contribution		0
Net Federal total estimated cost (TEC)		$ 6,000

10. Method of Performance

Design and inspection will be performed by the operation contractor. Construction will be performed under subcontracts awarded on the basis of competitive bidding.

1. Project Title and Location: Advanced Test Reactor Radioactive Waste System Upgrades
Idaho National Engineering
Laboratory, Idaho (Continued)

2a. Project No. 95-D-201
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Total
a. Total project costs					
1. Total facility costs					
(a) Line item (Section 10. i.)	$ 0	$ 334	$ 4,386	$ 1,280	$ 6,000
(b) Oper. Exp. funded equipment	0	0	0	0	0
(c) Inventories	0	0	0	0	0
Total facility cost (Federal and Non-federal)	$ 0	$ 334	$ 4,386	$ 1,280	$ 6,000
2. Other project costs					
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	214	0	0	0	214
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0
(d) NEPA Documentation costs	6	0	0	0	6
(e) Other project-related costs	50	114	234	185	583
Total other project costs	$ 270	$ 114	$ 234	$ 185	$ 803
Total project cost	$ 270	$ 448	$ 4,620	$ 1,465	$ 6,803
(f) Non-Federal contribution	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 270	$ 448	$ 4,620	$ 1,465	$ 6,803

b. Related annual funding (estimated life of project-- 20 years)	
1. Facility operating costs	$ 18
2. Facility maintenance and repair costs	6
3. Programmatic operating expenses directly related to the facility	0
4. Capital Equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	1
7. Other costs	0
Total related annual funding	$ 25

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12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- Narrative not required.
      (b) Expense-funded equipment -- Narrative not required.
      (c) Inventories -- Narrative not required.

   2. Other project costs
      (a) R&D necessary to complete to complete construction -- Narrative not required.
      (b) Conceptual Design Costs -- $214K was spent in FY 1992 and 1993 for development of the Functional and Operational Requirements (F&ORs), conceptual design and a value engineering study.
      (c) D&D -- Narrative not required. . . . . .
      (d) NEPA documentation costs -- $6K will be spent FY 1993 to prepare NEPA documentation for the project.
      (e) Other project-related costs -- $50K will be spent in FY 1994 to prepare Project Management Plan, Quality Program Plan, and Configuration Management Plan. $533K will be spent in FY's 1995-97 to prepare plant operating documentation, testing, facility interface drawing as built, facility configuration change control documentation, and readiness reviews.
      (f) Non-Federal Contributions -- Narrative not required.

b. Related annual funding
   1. Total Facility operating costs -- $18K will be spent for daily surveillance of the facilities to verify all systems are operating properly.
   2. Facility maintenance and repair costs -- $6K will be spent annually for preventative maintenance and instrument calibration.
   3. Programmatic operating expenses directly related to the facility -- N/A
   4. Capital Equipment not related to construction but related to programmatic effort in the facility -- N/A
   5. GPP or other construction related to the programmatic effort in the facility -- N/A
   6. Utility costs -- $1K will be spent for heat and lights.
   7. Other costs -- N/A

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in the left margin.)

OTHER DEFENSE ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars.)

Naval Reactors Development

1. Project Title and Location: Expended Core Facility
Dry Cell Project
Bettis Atomic Power Laboratory, Idaho

2a. Project No. 90-N-102
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st QTR FY 1990

3b. A-E Work (Titles I & II) Duration: 21 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $48,646
Total Project Cost (TPC) -- $51,027

4a. Date Physical Construction Starts: 2nd Qtr. FY 1993

4b. Date Construction Ends: 4th Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $48,646
TPC -- $51,027

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1990	$3,546	$0	$3,546	$1,564
1991	4,000	0	4,000	3,129
1992	15,000	0	15,000	4,258
1993	13,600	0	13,600	10,078
1994	0	0	0	2,410
1995	0	0	0	535
1996	3,000	0	3,000	8,535
1997	8,000	0	8,000	11,330
1998	1,500	0	1,500	6,827

8. Project Description, Justification and Scope

The Expended Core Facility (ECF) Dry Cell will consist of a dry shielded fuel handling, disassembly, examination and shipping facility, a decontamination shop, and a shielded repair shop. The facility and shops will be located in the existing ECF building South Bay and will be connected to the existing water pits. The facility will receive expended nuclear cores and ship disassembled fuel pieces to the Idaho Chemical Processing Plant. An approximately 16,000 square foot addition to the south of the existing 215,000 square foot ECF building is included to accommodate a shipping truck bay, spares storage, control room, and mockup training area. The addition will be of concrete block construction, poured in place steel reinforced concrete floor, and metal deck roof with a built-up elastomeric covering.

The dry shielded facility design will incorporate high density concrete radiation shielding and highly filtered air ventilation for radiological contamination control. Shielded lead glass windows and viewing aids will be provided at the various stations. The facility will include automated equipment for fuel module disassembly, examination, and shipment. Features of the production line include the water pit to dry cell delivery system, the examination system, the cutting system for separation of modules, and the prepared fuel shipping station. The dry (unmoderated) environment of the hot cell allows efficient material handling with a high degree of safety. The dry cell will have a design life of 40 years.

1. Project Title and Location: Expended Core Facility
Dry Cell Project
Bettis Atomic Power Laboratory, Idaho (Continued)

2a. Project No. 90-N-102
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The decontamination and repair shops will be integrally connected to the dry shielded facility via a shielded door and to the water pits via a canal. The shops will be serviced by small cranes and a transfer system sized to handle the largest piece of facility equipment.

The Dry Cell establishes work areas and equipment needed for efficient handling of expended nuclear cores. The receipt of expended nuclear cores has increased since the late 1980s. Additionally, many of these expended cores are larger and heavier than those ECF was originally designed to handle. Existing facilities and systems cannot efficiently meet the increased workload. Today, work is accomplished in water pits at ECF. These underwater fuel disposal methods are manpower intensive and have significant technical disadvantages. These technical disadvantages include extremely difficult equipment and facility maintenance, poor visibility, time-consuming shipping cask loading, and a significant burden of administrative and physical controls for nuclear safety. The use of a dry cell would significantly reduce these disadvantages.

A June 1993 court injunction placed this work on hold until completion of the Spent Fuel Environmental Impact Statement (EIS). The EIS Record of Decision was issued in June 1995. Procurement of equipment and facility design is recommencing. Based on recent agreements with the State of Idaho, restart of physical construction is anticipated in the spring of 1996. The project is scheduled to complete late in FY 1998. Through FY 1997, 85% of the project is expected to be complete.

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$17,100
1. Engineering design and inspection at approximately 51 percent of construction costs a/	$11,210	
2. Construction Management Costs	2,890	
3. Project management at 14.0% percent of construction costs (Item c)	3,000	
b. Land and land rights	0	
c. Construction costs		21,800
1. Improvements to land	200	
2. Buildings	12,730	
3. Utilities	2,050	
4. Special Facilities	6,820	
d. Standard Equipment		5,100
e. Removal cost less salvage		0
f. Design and project liaison, testing, checkout and acceptance		1,300
Subtotal		$45,300
g. Contingencies at approximately 7 percent of above costs		3,346
h. Total line item cost (Section 12. a. 1. (a))		$48,646
i. Non-Federal Contribution		0
Net Federal total estimated cost (TEC)		$48,646

NOTE: a/ Includes field inspection and equipment installation engineering checkout costs. The percent of construction and equipment value is high because of the significant Bettis design and inspection required for this unique facility.

10. Method of Performance

Contracting arrangements are as follows:

1. Project Title and Location: Expended Core Facility
Dry Cell Project
Bettis Atomic Power Laboratory, Idaho (Continued)

2a. Project No. 90-N-102
2b. Construction Funded

10. Method of Performance (Continued)

(a) Construction design will be performed under an Engineering Services Subcontract. Equipment will be designed by the operating contractor.
(b) Construction and procurement will be accomplished by fixed price contracts awarded on the basis of competitive bidding.
(c) Title III Inspection: By Engineering Services Subcontractor under operating contractor surveillance.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	Total
a. Total project costs						
1. Total facility costs						
(a) Line item (Section 10. i.)	$21,419	$ 535	$ 8,535	$11,330	$ 6,827	$48,646
(b) Oper. Exp. funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility cost (Federal and Non-federal	$21,419	$ 535	$ 8,535	$11,330	$ 6,827	$48,646
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	1,000	0	0	0	0	1,000
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA Documentation costs	0	0	0	0	0	0
(e) Other project-related costs	990	255	0	0	136	1,381
Total other project costs	$ 1,990	$ 255	$ 0	$ 0	$ 136	$ 2,381
Total project cost	$23,409	$ 790	$ 8,535	$11,330	$ 6,963	$51,027
(f) Non-Federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$23,409	$ 790	$ 8,535	$11,330	$ 6,963	$51,027

b. Related annual funding (estimated life of project--40 years)	
1. Facility operating costs	$ 288
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	1,620
4. Capital Equipment not related to construction but related to the programmatic effort in the facility	357
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total related annual funding	$ 2,265

1. Project Title and Location:	Expended Core Facility Dry Cell Project Bettis Atomic Power Laboratory, Idaho (Continued)	2a. Project No. 90-N-102 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item -- Narrative not required.
      (b) PE&D -- None.
      (c) Expense-funded equipment -- None.
      (d) Inventories -- None.
      (e) Non-Federal Contribution -- None.

   2. Other project costs
      (a) R&D necessary to complete to complete construction -- None.
      (b) Conceptual design -- No narrative required.
      (c) Other project-related funding -- Project startup and training are estimated to cost $136,000. An additional $1,245,000 is to procure several prototype items to support equipment design and confirm system operations.

b. Related annual funding -- The facility is expected to be used 40 years for its programmatic purpose.
   1. Facility operating costs -- The major elements comprising the annual operating costs are electrical power, and steam heat costs, and maintenance items such as utility lines, valves, pumps, motors, and support systems.
   2. Programmatic operating expenses directly related to the facility -- Includes operating manpower of 18 people.
   3. Capital equipment not related to construction but related to the programmatic effort in the facility -- Estimated cost includes replacement of operating equipment on a 15 year cycle.

Defense Nuclear Waste Disposal

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Defense Nuclear Waste Disposal	129,430	248,400	200,000	-48,400	-19.5%

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE NUCLEAR WASTE DISPOSAL

PROPOSED APPROPRIATION LANGUAGE

For nuclear waste disposal activities to carry out the purposes of Public Law 97-425, as amended, including the acquisition of real property or facility construction or expansion [$248,400,000] $200,000,000 to remain available until expended.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE NUCLEAR WASTE DISPOSAL
(Tabular dollars in thousands)

PROGRAM FUNDING PROFILE

PROGRAM ELEMENT	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
DEFENSE NUCLEAR WASTE DISPOSAL					
Yucca Mountain Site Characterization Office	$ 129,430	$ 163,400	$ 0	$ 163,400	$ 200,000
Congressional Reserve a/	--	85,000 a/	0	85,000 a/	0
TOTAL DEFENSE NUCLEAR WASTE DISPOSAL	$ 129,430	$ 248,400 a/	$ 0	$ 248,400 a/	$ 200,000
STAFFING (FTE's):					
HQ FTE's	0	0	0	0	0

Authorizations: P.L. 97-425, "Nuclear Waste Policy Act" (1982); P.L. 100-203, "Nuclear Waste Policy Amendments Act" (1987)

a/ The FY 1996 Energy and Water Development Appropriation Act reserved $85M in the Defense Nuclear Waste Disposal Appropriation which shall be available for obligation and expenditure only for an interim storage facility and only upon the enactment of specific statutory authority. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
(Tabular dollars in thousands)

DEFENSE NUCLEAR WASTE APPROPRIATION
PROGRAM FUNDING BY SITE

LABORATORY/PLANT/INSTALLATION	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Congressional Reserve a/	$ 0	$ 85,000 a/	$ 0	$ 85,000 a/	$ 0
Argonne National Laboratory	0	0	0	0	0
Chicago Operations Office	0	0	0	0	0
Idaho National Engineering	0	0	0	0	0
Lawrence Berkeley Lab	4,322	2,100	0	2,100	2,570
Lawrence Livermore National Lab	15,363	6,006	0	6,006	7,351
Los Alamos National Lab	9,982	6,637	0	6,637	8,124
Nevada Operations Office	20,107 b/	23,934	0	23,934	29,292
Nevada Test Site	1,302	4,730	0	4,730	5,790
Oak Ridge Institute for Science and Education	0	0	0	0	0
Oak Ridge National Laboratory	0	0	0	0	0
Oak Ridge Operations Office	0	0	0	0	0
Pacific Northwest Laboratory	0	0	0	0	0
Richland Operations Office	0	0	0	0	0
Sandia National Laboratories	3,721	4,474	0	4,474	5,476
Washington Headquarters (Includes Yucca Mountain Project Office) c/	74,633	115,519	0	115,519	141,397
TOTAL PROGRAM	$ 129,430	$ 248,400 a/	$ 0	$ 248,400 a/	$ 200,000

a/ The FY 1996 Energy and Water Development Appropriation Act reserved $85M in the Defense Nuclear Waste Disposal Appropriation which shall be available for obligation and expenditure only for an interim storage facility and only upon the enactment of specific statutory authority. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities.

b/ Includes Financial Assistance to the State of Nevada, and Affected Units of Local Government and includes funding for contracts administered in Nevada (i.e. USGS, National Academy of Science, Universities, etc.)

c/ Includes all funding for contracts administered at headquarters which include work both at Nevada and Washington Headquarters (i.e. Management and Operating contractor, Support Services contracts, etc.)

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGLT REQUEST
DEFENSE NUCLEAR WASTE DISPOSAL
PROGRAM OBJECT CLASS SUMMARY
(Dollars in Thousands)

Direct Obligation:	FY 1995 Non Comparable	FY 1995 Comparable	FY 1996 Non Comparable	FY 1996 Comparable	FY 1997
25.0 Other services	$ 129,480 a/	$ 129,430	$ 163,400	$ 163,400	$ 200,000
99.9 Subtotal Obligations	$ 129,480	$ 129,430	$ 163,400	163,400	200,000
Congressional Reserve	--	--	85,000 b/	85,000 b/	--
Total Defense Nuclear Waste Disposal Approp.	$ 129,480	$ 129,430	$ 248,400 b/	$ 248,400 b/	$ 200,000

a/ Reflects the use of prior years unobligated balances

b/ The FY 1996 Energy and Water Development Appropriation Act reserved $85M in the Defense Nuclear Waste Disposal Appropriation which shall be available for obligation and expenditure only for an interim storage facility and only upon the enactment of specific statutory authority. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
NUCLEAR WASTE FUND
(Dollars in thousands)

DEFENSE NUCLEAR WASTE DISPOSAL

I. Mission Supporting Goals and Objectives

The goal of the Defense Nuclear Waste Disposal Program is to dispose of high-level waste generated from atomic energy defense activities. The primary focus of this program is to find a long term geological repository for Defense Nuclear Waste. This effort supports the Yucca Mountain Site Characterization Project and is described in greater detail in the Nuclear Waste Fund Budget Request.

Pursuant to the Nuclear Waste Policy Act (NWPA) of 1983, the Nuclear Waste Fund (NWF) has incurred costs for activities related to disposal of high-level defense waste. The balance owed by the federal government was approximately $1,098 million (including principal and interest) at the end of FY 1995.

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II.	Funding Schedule	FY 1995	FY 1996	FY 1997	$Change	% Change
	Defense Nuclear Waste Disposal	$129,430	$248,400	$200,000	$-48,400	-19%

The FY 1996 Energy and Water Appropriation held $85 million reserve for the construction of an Interim Storage Facility.

Defense Environmental Management

ENVIRONMENTAL RESTORATION AND WASTE MANAGMENT

BUDGET JUSTIFICATION AND SUPPORTING MATERIALS FOR THIS ACTIVITY ARE CONTAINED IN A SEPARATE VOLUME

DOE/CR-0035
Volume 2 of 5

FY 1997
Congressional Budget Request

Energy Supply
Research and Development

Office of Chief Financial Officer

Department of Energy

March 1996

Volume 2

Energy Supply Research and Development

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY RESEARCH AND DEVELOPMENT

VOLUME 2

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy and Water Development Activities					
Energy supply research & development	3,412,738	2,869,382	3,020,497	151,115	5.3%
Uranium supply & enrichment activities	73,123	29,294	27,800	-1,494	-5.1%
Uranium enrichment D&D fund	301,327	278,807	240,200	-38,607	-13.8%
General science & research activities	970,329	982,150	1,009,150	27,000	2.7%
Atomic energy defense activities:					
Weapons activities	3,212,347	3,456,238	3,710,002	253,764	7.3%
Defense environmental restoration and waste mgmt	5,404,660	5,466,395	5,409,310	-57,085	-1.0%
Other defense programs	1,444,885	1,473,927	1,547,700	73,773	5.0%
Defense nuclear waste disposal	129,430	248,400	200,000	-48,400	-19.5%
Total, Atomic energy defense activities	10,191,322	10,644,960	10,867,012	222,052	2.1%
Departmental administration	94,415	86,733	119,475	32,742	37.8%
Office of the inspector general	28,036	26,601	29,605	3,004	11.3%
Power marketing administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	22,423	19,843	20,900	1,057	5.3%
Southwestern power administration	21,308	29,778	26,900	-2,878	-9.7%
Western area power administration	184,352	262,551	221,665	-40,886	-15.6%
Falcon & Amistad operating & maintenance fund	——	1,000	970	-30	-3.0%
Colorado river basin	——	——	-10,000	-10,000	——
Total, Power marketing administrations	234,575	317,432	264,435	-52,997	-16.7%
Federal energy regulatory commission	——	——	——	——	——
Nuclear waste disposal fund	392,630	151,626	200,028	48,402	31.9%
Total, Energy and Water Development Activities	**15,698,495**	**15,386,985**	**15,778,202**	**391,217**	**2.5%**

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Interior and Related Agencies					
Fossil energy research and development	421,370	421,497	348,508	-72,989	-17.3%
Alternative Fuels Production	-3,900	-2,400	-4,000	-1,600	-66.7%
Naval petroleum and oil shale reserves	186,993	148,786	149,500	714	0.5%
Energy conservation	717,482	538,913	715,363	176,450	32.7%
Economic regulation	12,408	6,297	2,725	-3,572	-56.7%
Strategic petroleum reserve	243,663	287,000	221,300	-65,700	-22.9%
SPR petroleum account	-107,764	-187,000	——	187,000	100.0%
Proceeds from sale of Weeks Island Oil, SPR decommissioning	——	-100,000	——	100,000	100.0%
Energy information administration	84,645	72,379	66,120	-6,259	-8.6%
Clean coal technology	36,276	150,000	-500,000	-650,000	-433.3%
Total, Interior and Related Agencies	**1,591,173**	**1,335,472**	**999,516**	**-335,956**	**-25.2%**
Energy and Water Development	15,698,495	15,386,985	15,778,202	391,217	2.5%
Uranium Enrichment D&D fund discretionary payments	-133,700	-350,000	-422,548	-72,548	-20.7%
Excess FERC receipts	——	-42,000	-25,892	16,108	38.4%
Total, Department of Energy	**17,155,968**	**16,330,457**	**16,329,278**	**-1,179**	**-0.0%**

[1] *FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.*

DEPARTMENT OF ENERGY
FY 1997 Congressional Budget Request
Staffing Summary

Energy and Water Development Activities	FTEs FY 1995	FY 1996	FY 1997	Percent Change
Energy Supply Research and Development	2,397	2,244	2,091	-7.3%
Uranium Enrichment Program Activities	56	51	46	-10.9%
Isotope Production and Distribution	9	11	11	0.0%
General Science and Research	86	92	90	-2.2%
Atomic Energy Defense Activities				
Weapons Activities	2,142	2,127	1,997	-6.5%
Environmental Restoration & Waste Mgmt	3,244	3,265	3,127	-4.4%
Materials Support & Other Defense Programs	722	777	770	-0.9%
Total, Atomic Energy Defense Activities	6,108	6,169	5,894	-4.7%
Departmental Administration	1,760	1,639	1,537	-6.6%
Office of the Inspector General	353	354	331	-6.9%
Power Marketing Administrations	4,998	4,960	4,925	-0.7%
Federal Energy Regulatory Commission	1,411	1,453	1,463	0.7%
Nuclear Waste Fund	260	248	230	-7.8%
Total, Energy & Water Development Activities	**17,438**	**17,221**	**16,618**	-3.6%

DEPARTMENT OF ENERGY
FY 1997 Congressional Budget Request
Staffing Summary

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DEPARTMENT OF ENERGY
FY 1997 Congressional Budget Request
Staffing Summary

	FTEs			Percent
Interior and Related Agencies	**FY 1995**	**FY 1996**	**FY 1997**	**Change**
Clean Coal Technology	80	76	71	-7.0%
Fossil Energy Research & Development	706	1,163	682	-70.5%
Naval Petroleum & Oil Shale Reserves	81	74	72	-2.8%
Energy Conservation	530	497	444	-11.9%
Emergency Preparedness	52	0	0	0.0%
Economic Regulation	112	90	54	-66.7%
Strategic Petroleum Reserve	156	148	139	-6.5%
Energy Information Administration	471	444	404	-9.9%
Total, Interior & Related Agencies Activities	**2,188**	**2,492**	**1,866**	-33.5%
Total Department of Energy	**19,626**	**19,713**	**18,484**	-6.6%

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy Supply Research and Development					
Energy efficiency and renewable energy	403,398	288,761	368,945	80,184	27.8%
Nuclear energy	312,104	256,561	248,054	-8,507	-3.3%
Environment, safety, and health	128,293	123,605	112,206	-11,399	-9.2%
Energy research	1,743,722	1,538,992	1,539,432	440	0.0%
Environmental restoration and waste management	735,533	617,802	651,414	33,612	5.4%
Other programs					
Civilian waste research and development	690	—	—	—	—
Technical information management	15,995	11,976	12,000	24	0.2%
Technology partnership	2,902	—	—	—	—
Field offices and management	127,433	112,915	121,723	8,808	7.8%
Information systems investment	—	—	14,900	14,900	—
Total, Other programs	147,020	124,891	148,623	23,732	19.0%
Subtotal, Energy Supply Research and Development	3,470,070	2,950,612	3,068,674	118,062	4.0%
Use of prior year balances and other adjustments	-57,332	-81,230	-48,177	33,053	40.7%
Total, Energy Supply Research and Development	**3,412,738**	**2,869,382**	**3,020,497**	**151,115**	**5.3%**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT ACTIVITIES

PROPOSED APPROPRIATION LANGUAGE

For expenses of the Department of Energy activities including the purchase, construction and acquisition of plant and capital equipment and other expenses incidental thereto necessary for energy supply, research and development activities, and other activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion, purchase of passenger motor vehicles (not to exceed [25, of which 19 are] 24 for replacement only), [$2,727,407,000] $3,020,497, to remain available until expended.

EXPLANATION OF CHANGE

There are essentially no changes in the appropriation language other than the number of vehicles.

Nuclear Energy

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY

VOLUME 2

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Nuclear Energy					
Nuclear energy research and development					
Light water reactor	62,831	40,000	40,000	——	——
Advanced reactor research and development	19,401	——	——	——	——
Space reactor power systems	1,154	——	——	——	——
Advanced radioisotope power system	59,582	48,512	40,000	-8,512	-17.5%
Facilities	7,013	——	——	——	——
Nuclear technology research and development	20,559	25,000	30,000	5,000	20.0%
Oak Ridge landlord	14,224	14,400	16,000	1,600	11.1%
Test reactor area landlord	3,951	3,900	4,000	100	2.6%
Advanced test reactor fusion irradiation	2,340	2,303	800	-1,503	-65.3%
University reactor fuel assistance and support	3,505	3,500	6,950	3,450	98.6%
Total, Nuclear energy research and development	194,560	137,615	137,750	135	0.1%
Termination costs	69,215	79,171	79,100	-71	-0.1%
Isotope support	20,875	24,658	12,704	-11,954	-48.5%
Program direction	27,454	15,117	18,500	3,383	22.4%
Subtotal, Nuclear Energy	312,104	256,561	248,054	-8,507	-3.3%
Use of prior year balances	-4,446	-4,961	——	4,961	100.0%
Total, Nuclear Energy	**307,658**	**251,600**	**248,054**	**-3,546**	**-1.4%**

EXECUTIVE BUDGET SUMMARY

In support of the U.S. Department of Energy's (DOE) mission, the Office of Nuclear Energy, Science and Technology (NE) has a mission to provide technical leadership for domestic and international nuclear issues. NE will support energy supply diversity and advance U.S. competitiveness and security by providing nuclear products and services to the U.S. and the world community in a safe, environmentally-sound and economical manner.

To accomplish this mission, the Office has established ten goals to guide its major programs. The goals relate to the Department's strategic plan. The goals of this Office are to:

- Cooperate with others to improve the safety of nuclear activities internationally
- Cooperate and coordinate with other Departmental offices and government agencies in the implementation of U.S. non-proliferation policy
- Ensure a reliable supply of medical, research, and industrial isotopes consistent with customer needs
- Support maintenance of the light water reactor option for domestic electricity generation
- Provide compact, safe nuclear power systems and related technologies to space, national security, and other customers
- Manage NE facilities and Office of Energy Research (ER) research reactors in a safe, economic, and environmentally-sound manner
- Contribute to the U.S. nuclear education infrastructure
- Foster U.S. industrial competitiveness through technology transfer and increased exports of nuclear goods and services
- Develop advanced nuclear technologies to address high-priority challenges
- Meet or exceed National Performance Review objectives to make government more effective, efficient, and responsive

Cooperate with Others to Improve the Safety of Nuclear Activities Internationally

DOE is committed to enhancing the safety of nuclear facilities throughout the world, and several initiatives are under way to increase international cooperation in this area. For example, cooperative research and development is being conducted with countries that have advanced nuclear programs, such as Japan, the United Kingdom, and South Korea. Additionally, steps are being taken to improve nuclear safety practices and technology in countries such as India and China. DOE also provides policy and technical leadership to international organizations that are concerned with nuclear safety.

Much of DOE's international nuclear safety effort is aimed at improving the safety of Soviet-designed nuclear power plants. The Chornobyl nuclear accident in 1986 focused world attention on the safety problems of Soviet-designed nuclear power plants. The 66 Soviet-designed nuclear power plants currently operating in Russia, Ukraine, and Central and Eastern Europe were designed and built to lesser safety standards than plants in the West, and are generally recognized to have significant safety deficiencies.

The Chornobyl nuclear accident in 1986 focused world attention on the safety problems of Soviet-designed reactors.

In coordination with other government agencies, DOE is assisting countries with Soviet-designed nuclear power plants in bridging the gap between internationally-accepted safety practices and their existing level of design, maintenance, and operation. DOE also is working to facilitate Ukraine's shutdown of the Chornobyl units still in operation.

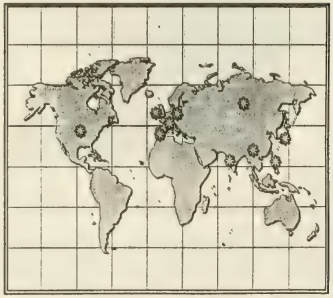
Program: International Nuclear Safety Program

FUNDING PROFILE		
FY 1995	**FY 1996**	**FY 1997**
$ 96.5M*	$ 30.0M**	$ 66.2M**
*Funded by U.S. Agency for International Development **Funded under Other Defense Activities appropriation		

Cooperate and Coordinate With Other Departmental Offices And Government Agencies In The Implementation Of U.S.--Non-proliferation Policy

NE is involved with other DOE offices and government agencies in efforts to halt the growing accumulation of fissile material from dismantled nuclear weapons and civilian nuclear energy programs throughout the world. In June 1994, U.S. Vice President Gore and Russian Prime Minister Chernomyrdin agreed to cease operation of Russian plutonium production reactors by the year 2000.

The three remaining Russian plutonium production reactors provide heat and electricity to the communities of Seversk and Zheleznogorsk, and shutdown of these reactors will not be possible until replacement power is available to ensure that energy supplies to these communities are not interrupted. DOE has been leading the efforts to address these replacement power issues, as well as



The growing worldwide accumulation of fissile material from civilian nuclear power programs and dismantled nuclear weapons continues to heighten international concern about nuclear proliferation.

additional nuclear safety and non-proliferation concerns related to breeder reactors in countries of the former Soviet Union. In addition, NE is promoting policies and developing spent fuel management plans to reduce the need for reprocessing nuclear fuel in countries of the former Soviet Union.

DOE also seeks reductions in worldwide inventories of other fissile materials. As part of this initiative, the United States Enrichment Corporation (USEC) is purchasing quantities of Russian low enriched uranium (LEU) that have been derived from highly enriched uranium (HEU) removed from dismantled Russian weapons. In March 1994, U.S. and Russian representatives signed the Protocol on HEU Transparency Arrangements, which governs U.S. access to Russian processing facilities, as well as the Transparency Protocol for Further Arrangements, which establishes how monitoring activities will be conducted at facilities in Russia and the U.S. In September 1994, the first meeting of the U.S.-Russian Transparency Review Committee (TRC) was held to develop detail procedures governing monitoring activities at facilities in both the U.S. and Russia. In July and November 1995, TRC meetings were held to continue procedure development. In accordance with these agreements, DOE is working to increase U.S. confidence that Russian LEU sold to the USEC is derived from HEU removed from dismantled Russian weapons.

Program: Nuclear Security / Russian Production Reactor Shutdown

FUNDING PROFILE		
FY 1995	**FY 1996**	**FY 1997**
$ 0M	$ 0M	$ 6.0M

Program: Uranium Supply and Enrichment Activities -- Russian Transparency

FUNDING PROFILE		
FY 1995	**FY 1996**	**FY 1997**
$ 7.7M	$ 7.0M	$ 13.9M

Ensure A Reliable Supply Of Medical, Research, and Industrial Isotopes Consistent With Customer Needs

NE manages the Isotope Production and Distribution (IP&D) Program, which produces and sells radioactive and stable isotopes, by-products, surplus materials such as lithium and deuterium, and related isotope services to worldwide markets. Such services include, but are not limited to, irradiation services; target preparation and processing; source encapsulation and other special preparations; analyses and separations; services related to shipping; and processing returned isotopes.

Each year one-third of the 30 million Americans hospitalized are diagnosed or treated with one or more nuclear medicine techniques. Radioactive isotopes are used in more than 36,000 nuclear medicine procedures each day and in 100 million medical laboratory tests each year.

The IP&D Program operates under a revolving fund and maintains financial continuity through its revenues and through payments from the Isotope Support account, which is funded through congressional appropriations. The Isotope Program has two primary missions. The first mission is to produce and distribute certain low-volume radioisotopes and enriched stable isotopes for research and development, medical diagnoses and therapy, and other applications that are in the national interest. The second mission is to produce and distribute high-volume radioisotopes and enriched stable isotopes for medical, industrial, agricultural, and other useful applications on a business-like basis.

Program: Isotope Support

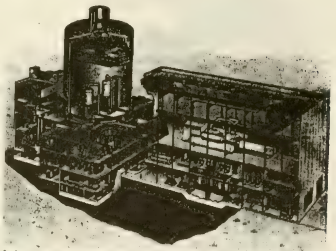
FUNDING PROFILE		
FY 1995	**FY 1996**	**FY 1997**
$ 18.8M	$ 23.1M	$ 11.1M

Support Maintenance Of The Light Water Reactor Option For Domestic Electricity Generation

NE's Light Water Reactor programs cover a broad range of activities designed to ensure the availability of a viable nuclear power plant option to serve the Nation's electric energy requirements in the next century. Program activities are concentrated on achieving Nuclear Regulatory Commission (NRC) certification of evolutionary and Advanced Light Water Reactor (ALWR) plant designs, promoting commercial standardization of plant equipment and systems, and supporting the continued operation of existing nuclear power plants for as long as they are safe, reliable, and economical.

Completing design certification for evolutionary and passive plants requires satisfying the new NRC design certification process provided under Title 10 of the Code of Federal Regulations Part 52, (10 CFR 52), as amended by the Energy Policy Act of 1992, by supporting the first certification of four ALWR designs.

Commercial standardization refers to the First-of-a-Kind Engineering of plant systems and components to enable firm cost estimates and the preparation of construction specifications. To facilitate First-of-a-Kind Engineering leading to commercial standardization, engineering details beyond the level required for NRC design certification are required. Design work is under way to complete such detailed engineering on the General Electric Advanced Boiling Water Reactor and Westinghouse AP-600 designs.



Industry and government are working together to make nuclear power plants a safe, environmentally-sound, and cost-effective energy choice for the 21st century. Standardized, advanced light water reactor designs, featuring state-of-the-art safety systems, will be precertified by the Nuclear Regulatory Commission, and could be available before the end of the decade.

The Department is providing support to industry in its efforts to secure an NRC-issued revised rule for nuclear power plant license renewal. Activities in this area include supporting development of the technical basis for operation of a plant beyond its current license, as well as a demonstration to establish the stability, predictability, and reasonableness of the regulatory process.

In a joint effort with industry and the NRC, DOE is supporting development and demonstration of innovative methods and technologies for repair, refurbishment, and replacement of high maintenance items to reduce overall plant generation costs. To avoid premature plant shutdowns based on performance and economics, public/private partnerships will be established with nuclear utilities to develop new processes to enable utilities to respond effectively to the changing regulatory and economic environment.

Program: Light Water Reactors

FUNDING PROFILE		
FY 1995	**FY 1996**	**FY 1997**
$ 62.8M	$ 40.0M	$ 40.0M

Contribute To The U.S. Nuclear Education Infrastructure

Expertise in the nuclear sciences is vital to many fields, including environmental restoration, medicine, non-proliferation, and basic research. To support our national needs, an increasing number of nuclear engineers, nuclear chemists, health physicists, and other scientific and technical professionals will be required. NE will help ensure the future availability of such nuclear professionals through support to the Nation's universities in the form of:

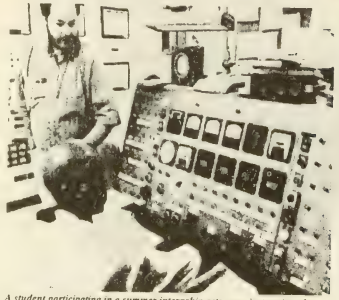
- , Fellowships for outstanding nuclear engineering and health physics graduates
- Research grants to university nuclear engineering programs that are 50/50 cost-shared with the electric utility industry
- Funding and grants awarded to students at historically black colleges and universities, including development of a cooperative program at Howard University and a chair in the Nuclear Energy department at Morgan State University
- Sponsorship of student exchange programs, teacher workshops, and diversity partnership summer schools

The use of university reactors by neighboring academic institutions for the purpose of scientific research and education is promoted through the Reactor Sharing program; this program also provides for outreach activities by sponsoring facility tours for intermediate and high school students. University reactors are supplied with fresh fuel, and spent fuel is transported away from university facilities through the University Reactor Fuel Assistance program. Grants that help to ensure the operational safety of university research reactor facilities are provided under the Safety and Maintenance Upgrade program.

Maintaining nuclear energy as a future energy option also requires providing the public with accurate, up-to-date information about the benefits and consequences of its use, as well as other, more general considerations. Students, advocates, and other interested members of the public are provided with educational materials to provide needed information and to help them make informed decisions about the use and future of nuclear energy.

Program: University Nuclear Science and Reactor Support

FUNDING PROFILE		
FY 1995	**FY 1996**	**FY 1997**
$ 3.5M	$ 3.5M	$ 7.0M



A student participating in a summer internship gets some instructions for adjusting the chain reaction taking place in the reactor core.

Provide Compact, Safe Nuclear Power Systems And Related Technologies To Space, National Security, And Other Customers

Radioisotope thermoelectric generators (RTGs) are used to provide electrical power for National Aeronautics and Space Administration (NASA) spacecraft, and to power important national security missions. Similarly, small radioisotope heater units (RHUs) provide heat to keep spacecraft instruments warm in many deep-space missions. RTGs and RHUs are essential to the design of NASA spacecraft, as well as for terrestrial defense missions. Under the Atomic Energy Act of 1954, as amended, and in accordance with congressional appropriations over the last 30 years, DOE has the responsibility to develop and produce such systems for user agencies, and to ensure the safety of these radioactive materials and the devices that use them.

Radioisotope Thermoelectric Generators and Radioisotope Heater Units are proved to NASA by the Department of Energy to satisfy needs for power on space missions such as Galileo and Cassini.

NE manages and operates the laboratory infrastructure needed to fabricate, assemble, and test RTGs, and to buy or produce the Pu-238 fuel used in these power systems.

NE is committed to provide RTGs for NASA's Cassini mission to Saturn. Work is continuing to design, fabricate, and assemble RTGs and RHUs for delivery to NASA for use on the Cassini mission in late 1997.

Program: Advanced Radioisotope Power Systems

FUNDING PROFILE		
FY 1995	**FY 1996**	**FY 1997**
$ 59.6M	$ 48.5M	$ 40.0M

Manage NE Facilities And Energy Research Reactors In A Safe, Economical, And Environmentally-Sound Manner

To support its missions, DOE operates research, test, and isotope production facilities. NE is responsible for managing test and research reactors, uranium enrichment facilities not leased by the USEC, several other non-reactor nuclear facilities, and excess uranium and depleted uranium hexafluoride inventories.

NE also manages those activities required to place its unneeded facilities into an industrially and radiologically safe shutdown condition. Major facilities currently in the shutdown phase are the Experimental Breeder Reactor II (EBR-II) at the Argonne National Laboratory-West (ANL-W) site near Idaho Falls, Idaho, and the Fast Flux Test Facility (FFTF) near Hanford, Washington.

Although managed by NE, the Office of Energy Research provides the funding for the operation of its reactors; deactivation of the FFTF is funded by the Office of Environmental Management.

In addition to its reactor facilities, NE manages several non-reactor facilities at ANL-W, including the Fuel Conditioning Facility, the Hot Fuel Examination Facility, and the Analytical Laboratory. These facilities are operated to support the shutdown of the EBR-II and are planned to support the development of techniques for the potential treatment of various DOE spent fuel types.

In addition to activities at the gaseous diffusion plants (GDP) covered under the DOE/USEC Lease Agreement, NE manages numerous other projects at its non-leased facilities. These projects include:

- Managing approximately 560,000 metric tons of depleted uranium hexafluoride stored at the GDPs, including developing a cylinder management strategy, extending cylinder life, and exploring options for the use of depleted uranium
- Safely shutting down HEU production equipment, including removal of HEU-bearing deposits, and continued monitoring of remaining materials to ensure no deposit migration
- Removing HEU materials from the Portsmouth site to reduce security costs
- Re-feeding HEU to blend it into commercially beneficial LEU, thereby reducing safeguards costs at the Portsmouth site after the HEU is removed

NE manages 17 research development, and test facilities to support activities related to energy generation, nuclear science, medical treatments, industrial applications, deep space exploration, waste management, and national defense.

- Supporting the USEC privatization effort by funding nuclear safety upgrades and preparing the NRC Compliance Plan
- Providing cost-effective electrical power to the USEC (electrical contracts were not transferred with the leased facilities)
- Managing environmental corrective actions required as a result of operations conducted prior to the USEC transition date

FUNDING PROFILE			
PROGRAM	**FY 1995**	**FY 1996**	**FY 1997**
TRA Landlord	$ 4.0M	$ 3.9M	$ 4.0M
Oak Ridge Landlord	$ 14.2M	$ 14.4M	$ 16.0M
ATR Fusion Irradiation	$ 2.3M	$ 2.3M	$ 0.8M
Termination Costs	$ 69.2M	$ 79.2M	$ 79.1M
Uranium Supply & Enrichment Activities	$ 70.3M	$ 76.8M	$ 66.7M

Develop Advanced Nuclear Technologies to Address High-Priority Challenges

NE is developing technology for treating various spent fuels and mixed wastes within the DOE inventory. The National Academy of Sciences has issued a report entitled, *An Assessment of Continued Research and Development into an Electrometallurgical Approach for Treating DOE Spent* Fuel, which recommends that DOE continue this research and development program.

FUNDING PROFILE			
PROGRAM	**FY 1995**	**FY 1996**	**FY 1997**
Nuclear Technology R&D	$ 20.6M	$ 25.0M	$ 30.0M

Foster U.S. Industrial Competitiveness Through Technology Transfer and Increased Exports of Nuclear goods and Services

The transfer of new nuclear technologies and research and development data for both nuclear and non-nuclear energy applications is facilitated through partnerships with industry, federal and state agencies, non-profit organizations, and universities. Such partnerships provide an opportunity for the participants to take advantage of the technical expertise available at DOE laboratories and facilities. Technology transfer activities offer the American people innovations that can provide new products, services, and procedures, as well as economic, environmental, health, and other benefits.

NE's program started in 1995 with two Cooperative Research and Development Agreements (CRADAs) signed with industry partners and four CRADAs are planned in 1996. NE is expanding existing technology transfer programs and the number of CRADAs related to membrane and centrifuge technology. Business and market analyses continue to project significant benefits to U.S. industry productivity and the national economy. Early government and industry market projections indicate technology transfer offering new product annual sales could range from $5 million to $25 million over a product life-cycle of 10 to 20 years, resulting in creating new U.S. jobs and enhanced economic growth.

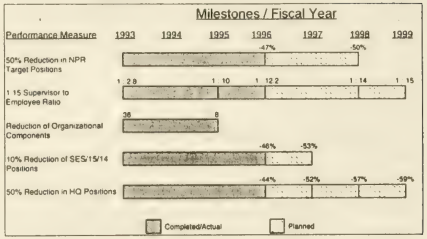
Program: Uranium Supply and Enrichment Activities - Technology Transfer

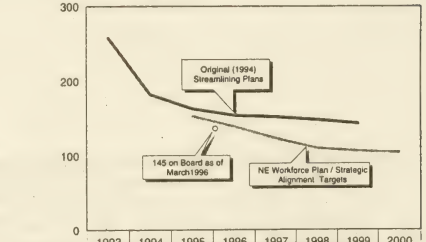
FUNDING PROFILE		
FY 1995	**FY 1996**	**FY 1997**
$6.9M	$2.0M	$1.0M

Meet or Exceed National Performance Review Objectives to Make Government More Effective, Efficient, and Responsive

NE is a full participant in efforts to make government less expensive, more efficient and to move the national bureaucracy toward demonstrating greater initiative and empowerment. NE is pursuing several related initiatives, including quality management, training, organizational streamlining, and customer service improvement.

As shown in the accompanying charts, NE will meet or exceed all National Performance Review goals and is well ahead of schedule in doing so.





	1993	1994	1995	1996	1997	1998	1999	2000
Original Plan	258	182	163	154	152	148	143	
SAI Target			153	139	123	110	106	104

Program: NE Staffing Accounts

FUNDING PROFILE			
PROGRAM	**FY 1995**	**FY 1996**	**FY 1997**
Program Direction*	$29.9	$25.8**	$25.8

* Program Direction, Policy & Management, Isotopes, and Uranium staffing accounts have been combined.

** Includes $4.9M carryover.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, Narrative in whole dollars)

OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY
NUCLEAR ENERGY R&D

PROGRAM MISSION

The primary mission of the Nuclear Energy Research and Development program is to enhance the economic and national security interests of the United States, and to increase the safety of commercial nuclear activities.

The GOALS of the Nuclear Energy R&D program are to:

1. Maintain the nuclear energy option into the next century by making a new, safer generation of light water reactors available for the future energy needs of the United States and by resolving life-extension issues associated with existing operating nuclear power plants.

2. Provide compact, safe nuclear power systems and related technologies to NASA and national security customers.

3. Improve the state-of-the-art in nuclear safety technology and improve the safety of nuclear power plants worldwide.

4. Maintain an adequate nuclear industry and education infrastructure.

5. Manage facilities in a safe, environmentally sound, and cost-effective manner.

The OBJECTIVES related to these goals are:

1. Complete design certification for evolutionary and passive plants in cooperation with industry.

2. Support license renewal to extend lifetime of existing plants.

3. Seek and foster collaboration with safety research institutions in the U.S. and worldwide.

4. Provide fuel assistance, fellowship grants, safety upgrade funding, and other assistance to U.S. universities, in cooperation with industry.

The OBJECTIVES related to these goals are - continued

5. Promote cooperation among government, industry, universities and national laboratories to develop valuable personnel, systems, information and technological resources.

6. Meet NE's commitment to NASA to provide Radioisotope Thermoelectric Generators (RTG) and heater units for the Cassini mission to Saturn.

7. Maintain the infrastructure needed to build radioisotope power supplies and, using NASA funding, develop advanced technologies.

8. Manage the research and test reactors and supporting facilities required to meet DOE missions in a safe, economical, and environmentally-sound manner.

9. Support U.S. International Nuclear Safety Center.

PERFORMANCE MEASURES:

1. Complete SSAR design base analysis for AP600 and responses to AP600 Final Safety Evaluation Report.

2. Complete detailed designs for systems to be designed for ABWR first-of-a-kind engineering.

3. Complete fabrication of the three RTGs and 157 Radioisotope Heater Units required for the NASA Cassini Mission and ship them to Kennedy Space Center before launch.

4. Complete the Final Safety Analysis Report for the Cassini Mission RTGs.

5. Provide fellowships to outstanding and promising United States M.S. and Ph.D. students.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

1. Complete verification tests to develop and defend safety analysis in support of safety assessments by NRC for the passive ALWRs.

2. Receive AP-600 final design approval and initiate design certification process.

3. NASA acceptance of three RTGs for NASA Cassini mission.

4. Complete final Safety Analysis Report for Cassini RTGs.

5. NASA acceptance of Cassini RTGs and Radioisotope Heater Units at Kennedy Space Center.

6. Treat EBR-II irradiated fuel assemblies in the Fuel Conditioning Facility to place into a storable form and conduct supporting Analytical Laboratory operations.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS: - continued

7. Continue to operate the TRA Hot Cells to support medical isotope and other programs.

8. Initiate construction for the TRA Fire and Life Safety Improvements.

9. Initiate the irradiation test program at the Advanced Test Reactor in support of the DOE/Monbusho Fusion Energy program.

10. Award fellowships to outstanding and promising United States M.S. and Ph.D. students engaged in nuclear science research and training, ensuring an adequate supply of trained nuclear personnel.

11. Began cooperative projects among U.S., Russian, and Ukrainian international safety centers supported by U.S. national laboratories.

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NUCLEAR ENERGY R&D

PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Light Water Reactors	$ 62,831	$ 40,000	$ 0	$ 40,000	$ 40,000
Advanced Reactor R&D	19,401	0	0	0	0
Space Reactor Power Systems	1,154	0	0	0	0
Advanced Radioisotope Power Systems	59,582	48,512	0	48,512	40,000
Facilities	7,013	0	0	0	0
Nuclear Technology R&D	20,559	0	25,000[1]	25,000	30,000
Program Direction	23,414[2]	13,000	6,157[3]	19,157[3]	18,500
Oak Ridge Landlord	14,224	14,400	0	14,400	16,000
TRA Landlord	2,235	2,000	0	2,000	3,000
ATR Fusion Irradiations	2,340	2,303	0	2,303	800
University Nuclear Science and Reactor Support	3,505	3,500	0	3,500	6,950
SUBTOTAL	**216,258**	**123,715**	**31,157**	**154,872**	**155,250**
Construction	1,716	1,900	0	1,900	1,000
SUBTOTAL, Nuclear Energy R&D	**217,974**	**125,615**	**31,157**	**156,772**	**156,250**
Use of Prior Year Balances	- 4,446	- 5,490	+ 529[4]	- 4,961	0
TOTAL, Nuclear Energy R&D	**$ 213,528**	**$ 120,125**	**$ 31,686**	**$ 151,811**	**$ 156,250**

[1] Appropriated in Defense Environmental Waste Management Appropriation.
[2] $4,040,055 unobligated carryover from FY 1995 used to support the program in FY 1996.
[3] Includes $2,117,000 for Working Capital Fund and $4,040,055 FY 1995 unobligated carryover.
[4] Spread of prior year balances transferred to Termination Costs.

NUCLEAR ENERGY R&D

PROGRAM FUNDING BY SITE
(Dollars in Thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Albuquerque Operations Office	$ 342	$ 320	$ 0	$ 320	$ 845
Sandia National Laboratory	4,773	5,281	0	5,281	5,500
Los Alamos National Laboratory	12,670	12,215	0	12,215	13,800
Chicago Operations Office	31,816	15,430	0	15,430	19,180
Ames Laboratory	375	365	0	365	300
Argonne National laboratory (East)	10,247	1,377	25,000	26,377	30,500
Argonne National Laboratory (West)	27,529	0	0	0	0
Brookhaven National Laboratory	150	0	0	0	0
Idaho Operations Office	108	105	0	105	110
Idaho National Engineering Laboratory	8,875	7,673	0	7,673	7,250
Nevada Field Office	300	285	0	285	1,085
Oakland Operations Office	38,666	20,820	0	20,820	16,335
Lawrence Livermore Laboratory	75	0	0	0	0
Oak Ridge Operations Office	15,504	15,704	0	15,704	17,264
Oak Ridge Institute of Science & Education	1,245	150	0	150	0
Oak Ridge National Laboratory	7,806	3,730	0	3,730	3,060
Office of Science and Technical Information	34	38	0	38	0
Ohio Operations Office	150	100	0	100	0
Mound Plant	8,700	7,780	0	7,780	6,750
Richland Operations Office	550	512	0	512	442
Hanford Site	5,995	3,175	0	3,175	400
Pacific Northwest Laboratory	2,303	0	0	0	0

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Savannah River Operations Office	$ 0	$ 0	$ 0	$ 0	$ 0
Savannah River Site	13,980	9,860	0	9,860	700
All Other Sites	25,781	20,695	6,157	26,852	32,729
SUBTOTAL, NUCLEAR ENERGY R&D	217,974[5]	125,615	31,157	156,772[5]	156,250
Use of Prior Year Balances	-4,446	-5,490	+529	-4,961	0
TOTAL, NUCLEAR ENERGY R&D	**$ 213,528**	**$ 120,125**	**$ 31,686**	**$ 151,811**	**$ 156,250**

[5]$4,040,055 unobligated carryover from FY 1995 used to support the program in FY 1996.

NUCLEAR ENERGY R&D

PROGRAM OBJECT CLASS SUMMARY
(Dollars in Thousands)

Personnel Compensation:	FY 1995 Comp.	FY 1995 Non-comp.	FY 1996 Comp.	FY 1996 Non-comp.	FY 1997 Request
25.2 Other services	$ 9,446	$ 9,446	$ 11,985	$ 11,985	$ 12,800
25.5 Research and development contracts	176,385	174,281	119,315	94,315	117,750
31.0 Equipment	4,008	4,008	2,885	2,885	2,800
32.0 Land and structures	4,721	4,721	3,430	3,430	4,400
SUBTOTAL	$ 194,560	$ 192,456	$137,615	$ 112,615	$ 137,750
Use of Prior Year Balances	-4,446	-4,446	-4,961	-5,490	0
99.9 TOTAL	**$ 190,114**	**$ 188,010**	**$132,654**	**$ 107,125**	**$ 137,750**

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OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY
CAPITAL OPERATING EXPENSES AND CONSTRUCTION SUMMARY

NUCLEAR ENERGY R&D
($ in Thousands)

Capital Operating Expenses	FY 1995	FY 1996	FY 1997	$ Change	% Change
Advanced Radioisotope Power Systems	$ 1,827	$ 900	$ 800	$ -100	-11
TRA Hot Cells	200	200	200	0	0
Oak Ridge Landlord	1,981	1,500	1,500	0	0
TRA Landlord	0	285	300	15	5
SUBTOTAL, Equipment	**$ 4,008**	**$ 2,885**	**$ 2,800**	**$ -85**	**-3**
GPN-102 General Plant Projects, Test Reactor Area, INEL	$ 750	$ 730	$ 1,000	$ 270	37
GPN-103 General Plant Projects, Oak Ridge Landlord, OR	2,255	800	2,400	1,600	200
SUBTOTAL, Construction	**$ 3,005**	**$ 1,530**	**$ 3,400**	**$ 1,870**	**122**

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Construction Funded Project Summary

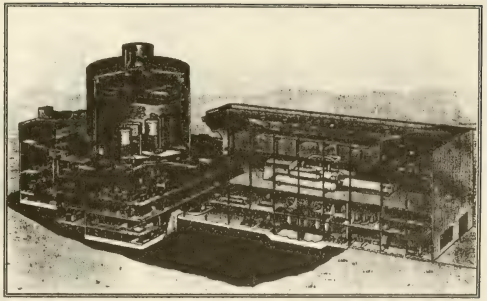
Project Number	Project Title	TEC	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Unapprop. Balance
95-E-201	TRA Fire and Life Safety Improvements, INEL	$ 15,446[b]	$ 1,716	$ 1,900	$ 1,000	TBD

[b]Reflects a $54,000 general reduction.

LIGHT WATER REACTORS
(Dollars in Thousands)

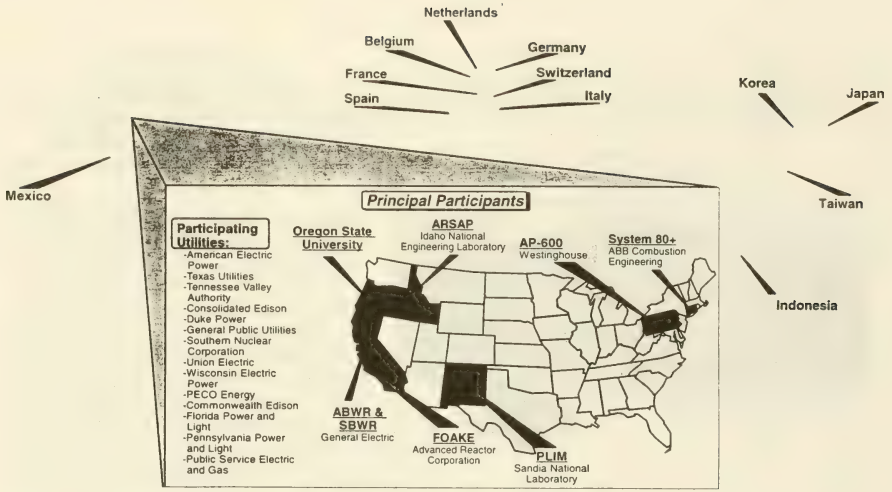
I. Mission Supporting Goals and Objectives

This program is a nationally coordinated effort to meet the goals of elimination of barriers to efficient and cost-effective operation of nuclear powerplants, and maintaining exacting standards of safety in the design and operation of nuclear powerplants. A major focus of this cost-shared program is to make certified standardized Advanced Light Water Reactors (ALWR) available at the earliest possible date to ensure that nuclear power is an option to contribute to the new electrical capacity projected to be required by 2010. The program performs those activities necessary to ensure that ALWR orders can be based on marketplace decisions. It demonstrates a viable Nuclear Regulatory Commission (NRC) process by certification of two advanced evolutionary light water reactor designs. It also develops and certifies the more passively-safe, 600 Mwe plant concepts. This program provides for the continuation of the first-of-a-kind engineering (FOAKE) standardization activities to produce ALWR designs. All of the above activities are being carried out in coordination with the Utilities Nuclear Power Oversight Committee's (NPOC) "Strategic Plan for Building New Nuclear Power Plants."



AP-600 Design:
In FY 1996, Nuclear Energy will provide R&D support to secure NRC certification of evolutionary designs

The Commercial Light Water Reactor program provides technology support to existing U.S. commercial operating nuclear powerplants and to the ALWR Program. It applies the results of the severe accident technology programs to the implementation of the Severe Accident Policy Statement for ALWRs to prevent severe accident issues from forestalling acceptance of ALWRs. It develops technology to support the extension of nuclear powerplant life beyond the current arbitrary 40-year licensing period. It further explores solutions to safety regulatory and other institutional impediments to the deployment and continued operation of nuclear powerplants.



Light Water Reactors Program Participants

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II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Advanced Light Water Reactor	$ 56,831	$ 31,300	$ 30,300	$ -1,000	-3
Commercial Light Water Reactor	6,000	8,700	9,700	1,000	11
TOTAL, Light Water Reactors	**$ 62,831**	**$ 40,000**	**$ 40,000**	**$ 0**	**0**

III. Performance Summary

The ongoing LWR programs are cost-shared equally between utilities, industry and the Department of Energy and involve both domestic and international participants. These programs provide approximately 1,000 jobs for highly skilled professionals located in 20 states.

FY 1995 Accomplishments:

- Continued design certification rulemaking proceedings for the evolutionary ALWRs.
- Continued FOAKE for the selected ALWRs to support commercial standardization.
- Completed verification tests to develop and defend safety analysis in support of safety assessments by NRC for the passive ALWRs.
- Continued severe accident support work for the passive ALWRs Final Design Approvals (FDA).
- Continued interactions with the industry on the technical support to licensing extension with significant effort devoted to R&D in areas of high uncertainty.
- Provided funds for analyses and other information which relate to some of the economic, financial, environmental and regulatory issues facing nuclear energy, in order to ensure that design and technology programs are focused effectively.

FY 1996 Accomplishments (to date and planned):

- Continue FOAKE activities to assure commercial standardization of future commercial powerplants.
- Complete Simplified Boiling Water Reactor (SBWR) testing and analysis in support of licensing topical reports.
- Resolve Draft Safety Evaluation Report open items and requests for information supporting NRC safety assessment for the AP-600.
- Continue severe accident analyses and mitigation measures in support of ALWR certification by NRC.

FY 1996 Accomplishments (to date and planned): - continued

- Continue interactions with industry on the technical support to license extension with use of national laboratory technical expertise in areas of repair, refurbishment and replacement of high maintenance and other license extension areas.
- Provide funds for analyses and other information which relate to some of the economic, financial, environmental and regulatory issues facing nuclear energy in order to ensure that design and technology programs are focused effectively.
- Complete a prototype RPV annealing demonstration to support first commercial RPV anneal.
- Continue material degradation testing and analysis at national laboratories for critical safety component and structures.

FY 1997 Planned Accomplishments:

- Receive AP-600 final design approval and initiate design certification process.
- Complete the ABWR FOAKE program and continue the AP-600 FOAKE program with efforts over 90 percent complete by the end of the year.
- Continue severe accident analyses and mitigation measures in support of ALWR certification by NRC.
- Continue interactions with industry on the technical support to license extension that leads to regulatory and commercial acceptance.
- Provide funds for analyses and other information which relate to some of the economic, financial, environmental and regulatory issues facing nuclear energy in order to ensure that design and technology programs are focused effectively.
- Initiate with industry RPV annealing program that leads to NRC approval for first commercial demonstration.
- Receive ASME approval of code case to support RPV annealing.
- Develop plan for extended fuel burn-up

Explanation of Funding Changes FY 1996 to FY 1997:

With the evolutionary plants nearing completion of design certification, emphasis is shifting to safety and life extension of existing plants.

NUCLEAR ENERGY R&D

ADVANCED REACTOR R&D
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

Consistent with FY 1995 Congressional appropriations, the Advanced Liquid Metal Reactor (ALMR) and the Integral Fast Reactor (IFR)/Actinide Recycle programs were terminated in FY 1995. Required funding was included in the Termination Costs decision unit. Gas Turbine-Modular Helium Reactor (GT-MHR) activities continued in FY 1995.

Congressional action on the FY 1996 budget directed that the GT-MHR program be terminated and required funding was provided in the Termination Cost decision unit.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Gas Turbine-Modular Helium Reactor	$ 10,701	$ 0	$ 0	$ 0	0
Integral Fast Reactor/Actinide Recycle	8,700	0	0	0	0
TOTAL, Advanced Reactor R&D	**$ 19,401**	**$ 0**	**$ 0**	**$ 0**	**0**

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III. Performance Summary

FY 1995 Accomplishments:

- Continued the GT-MHR design efforts with focus on research and development of fuel and major gas-turbine components. The IFR/Actinide Recycle program was terminated and closeout activities were initiated in October 1994. Funds in this decision unit combined with reprogrammed and transferred funds in the Nuclear Technology Development R&D decision unit were used to redirect the valuable physical and intellectual resources that were previously utilized in the IFR/Actinide Recycle program at ANL-E and ANL-W.

SPACE REACTOR POWER SYSTEMS
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

This activity supported other Federal agencies in the design, development, production, and testing of reactor power systems for space and special purpose terrestrial applications and nuclear reactor propulsion systems for space applications.

Though numerous NASA and DOD applications and some industrial applications have been suggested, no agency or segment of private industry has made a commitment to a space mission using a space reactor system. Therefore, no funding was requested for this activity in FY 1996 or FY 1997. The two recent DOE space reactor power systems development programs, the SP-100 and the DOE thermionic space reactor power system efforts, were closed out in FY 1994. This happened primarily due to changes in customers' mission needs and budget priorities. In FY 1995, DOE funded studies and limited technology development that would be used to support potential NASA, DOD, and commercial missions.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Space Reactor Power Systems	$ 1,154	$ 0	$ 0	$ 0	0
TOTAL, Space Reactor Power Systems	**$ 1,154**	**$ 0**	**$ 0**	**$ 0**	**0**

III. Performance Summary

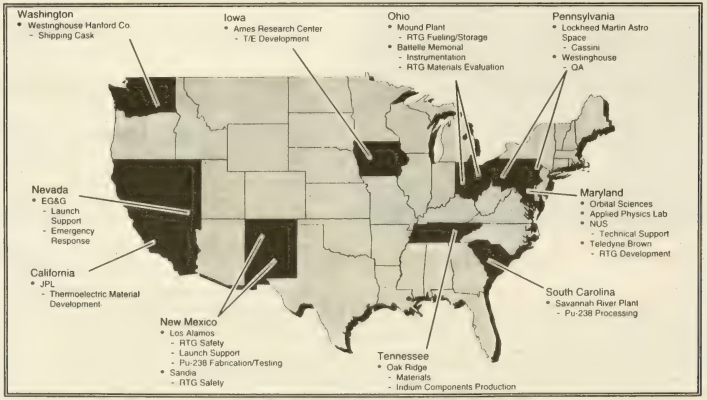
FY 1995 Accomplishments:

- Completed contract closeout activities using prior year funds.
- Using prior year funding, proceeded with examination and disposal of test articles and low level wastes. Provided facility maintenance to satisfy obligations from previous programs.
- Conducted studies on space reactor power and propulsion systems and technology to support NASA, DOD, and commercial interests. Activities included: technical and managerial support to the Air Force nuclear bimodal program; sponsor the archiving of all SP-100 documentation at the Oak Ridge Office of Scientific and Technical Information; and support of research into radiation hardened electronics at the Defense Nuclear Agency and high temperature materials research at Auburn University. Awarded grant to Babcock & Wilcox for the transfer of Russian high temperature fuels technology to the U.S. for potential DOD and NASA interests. Supported United Nations and national policy activities related to space nuclear power.

ADVANCED RADIOISOTOPE POWER SYSTEMS
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

This activity provides support for radioisotope power source development, demonstration, testing, and delivery. Radioisotope power sources are the enabling technology for space and terrestrial applications requiring proven, reliable and maintenance-free power supplies capable of producing up to several kilowatts of power and operating under severe environmental conditions for many years. Previous missions that have used radioisotope power sources include the Apollo lunar surface scientific packages, Pioneer, Viking, Voyager, Galileo, and Ulysses spacecraft.



Advanced Radioisotope Power Systems -- Primary Participants

I. Mission Supporting Goals and Objectives - continued

The Advanced Radioisotope Power Systems program maintains the sole national capability and facilities to produce radioisotope power systems. Program focus is on mission requirements of the National Aeronautics and Space Administration (NASA) and the Department of Defense (DOD). Projects are conducted with these agencies in accordance with Memoranda of Understanding and are dependent upon cost sharing by the user agencies. Support is provided to maintain fabrication and safety testing activities for NASA's Cassini mission, scheduled for launch in late 1997. Delivery of three new radioisotope thermoelectric generators (RTGs) and a requalified existing spare unit to the launch site six months prior to the Cassini launch is required. Production activities for the Cassini RTGs were initiated in FY 1990. Also provided is support for on-going special purpose terrestrial power sources utilized by other Federal agencies. This activity supports the acquisition and processing of the required Plutonium-238 fuel for Cassini and provides an inventory of flight quality Pu-238 for future NASA and DOD missions. This request provides for maintenance of facilities and skilled personnel; modernization and upgrades as required; and provides funding for generic nuclear energy studies, evaluations and safety support.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Radioisotope Thermoelectric Generators	$ 44,510	$ 37,712	$ 35,200	$ -2,512	-7
Special Applications	1,692	1,800	1,800	0	0
Plutonium-238 Acquisition and Processing	13,380	9,000	3,000	-6,000	-67
TOTAL, Advanced Radioisotope Power Systems	**$ 59,582**	**$ 48,512**	**$ 40,000**	**$ -8,512**	**-18**

III. Performance Summary

FY 1995 Accomplishments:

- Completed fabrication and acceptance tests of the first Cassini flight thermoelectric converters.
- Completed encapsulation of 80 fuel pellets for the first of three Cassini RTG heat sources and initiated assembly of General Purpose Heat Source (GPHS) modules.
- Completed reacceptance testing of the Cassini flight spare RTG from the Galileo/Ulysses program.
- Continued safety test program for Cassini mission; issued Updated Safety Analyses Report for the MARS Pathfinder mission; issued Preliminary Safety Analysis Report for the Cassini mission; and supported safety committee reviews required for launch approval.

FY 1995 Accomplishments: - continued

- Completed regulatory tests and continued construction of a new RTG shipping container under new Certificate of Compliance.
- Maintained the Plutonium Fuel Form Fabrication (PuFF) Facility in a safe and environmentally acceptable condition pending transfer.
- Maintained special applications power source capability, including development of a heat source for a 60-watt program.
- Continued Plutonium-238 processing operations in support of Cassini mission and initiated processing of Cassini scrap returns and scrap material remaining in the U.S. inventory to a form suitable for use for future NASA and DOD missions.

FY 1996 Accomplishments (to date and planned):

- Complete fabrication and acceptance testing of the Cassini flight thermoelectric converters.
- Complete encapsulation of 160 fuel pellets for second and third Cassini RTG heat sources.
- Continue assembly of GPHS modules and complete assembly and acceptance testing of the first Cassini RTG; initiate assembly and testing of the second and third RTGs.
- Continue safety test program for Cassini mission, and initiate preparation of the Cassini Final Safety Analysis Report.
- Support safety committee reviews of test program and Safety Analysis Reports required to obtain launch approval for NASA's Cassini and Mars Pathfinder missions.
- Ship heater units for the Mars Pathfinder mission to Kennedy Space Center (KSC) and complete ground operations and emergency preparedness planning activities for the launch in December 1996.

Cassini Mission To Saturn:
In FY 1996, Nuclear Energy will complete the safety analyses for the Cassini mission

- Maintain the PuFF in a safe and environmentally acceptable condition pending transfer to EM.

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FY 1996 Accomplishments (to date and planned): - continued

- Submit Safety Analysis Report for Packaging for regulatory review for the new shipping container under new Certificate of Compliance.
- Maintain special applications power source capability and continue to support the 60-watt heat source program and testing activities.
- Continue processing Cassini scrap returns and scrap Pu-238 in the U.S. inventory to a form suitable for use for future NASA and DOD missions.

FY 1997 Planned Accomplishments:

- Complete safety test program for Cassini mission and issue Cassini Final Safety Analysis Report.
- Continue to support safety committee reviews of safety test program results and Safety Analysis Reports to obtain Cassini and Mars Pathfinder launch approvals.
- Support ground operations and emergency preparedness activities for the Mars Pathfinder launch scheduled for December 1996.
- Support Cassini ground operations and complete emergency response planning activities at KSC in preparation for the Cassini launch.
- Complete fabrication of new shipping container and obtain Certificate of Compliance.
- Complete RTG assembly and acceptance testing and ship the three new Cassini RTGs and the flight spare RTG to KSC.
- Support RTG checkout and test activities at KSC and prepare to install RTGs on the Cassini spacecraft just prior to launch.
- Continue to operate and maintain essential facilities and program infrastructure in support of Cassini and future NASA missions; maintain the PuFF in a safe and environmentally acceptable condition pending transfer to EM.
- Maintain special applications power source capability and continue to meet user requirements and schedules including the long-term testing requirement for the 60-watt heat source program.
- Initiate efforts to establish the long-term capability and infrastructure to recycle or replenish the useable inventory of Pu-238.

Explanation of Funding Changes FY 1996 to FY 1997:

There will be a decrease of $8,512,000 as the Cassini mission nears completion and the overall program moves toward a facility infrastructure maintenance mode of operation.

FACILITIES
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

Consistent with FY 1995 Congressional appropriations, shutdown of the Experimental Breeder Reactor (EBR-II) has commenced. In FY 1995, funding to prepare the Fuel Conditioning Facility (FCF) and Analytical Laboratory (AL) to support shutdown of the EBR-II by treating irradiated fuel to place into a storable form was included in the Facilities decision unit. However, in FY 1996, Congress appropriated funding for these activities in the Termination Costs decision unit. Funding for FCF and AL operations in FY 1997 is requested in the Termination Costs decision unit.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Facilities	$ 7,013	$ 0	$ 0	$ 0	0
TOTAL, Facilities	**$ 7,013**	**$ 0**	**$ 0**	**$ 0**	**0**

III. Performance Summary

FY 1995 Accomplishments:

- Completed FCF modifications required to treat EBR-II irradiated fuel assemblies to place into a storable form. Completed AL modifications required to perform chemical analysis on radioactive process materials to support FCF operations.

NUCLEAR TECHNOLOGY R&D
(Dollars in Thousands)

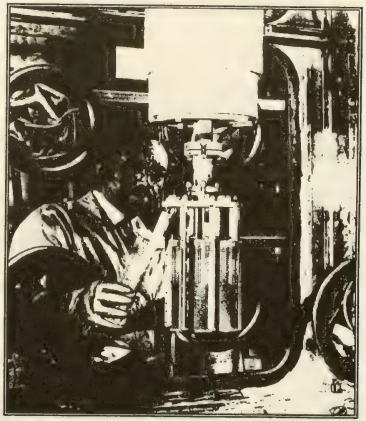
I. Mission Supporting Goals and Objectives

The Nuclear Technology R&D program provides funding to support research and development on technologies supporting high-priority DOE missions, specifically electrometallurgical treatment of DOE spent fuels for safe storage and ultimate disposition and the establishment and operation of an International Nuclear Safety Center.

DOE is responsible for approximately 2,700 metric tons of spent nuclear fuel discharged from DOE reactors and in storage at several DOE sites. A standard, cost-effective means for treating this spent fuel for ultimate disposal is needed, and the electrometallurgical treatment process being developed at Argonne National Laboratory (ANL), which allows treatment of various fuels by one common method, appears to best meet these requirements. This process produces two common high-level waste forms and offers significant cost savings in commonality of process equipment and waste forms. The process has the potential to treat up to 90 percent of DOE's spent nuclear fuel inventory.

The Nuclear Technology R&D program supports the following activities:

- Continued development of high-throughput electrorefiner to support conditioning of EBR-II fuel and blanket elements;
- Continued R&D for treatment of other DOE spent fuel such as Molten Salt Reactor Experiment (MSRE) fuel, eliminating a current storage safety problem;
- Waste treatment R&D and waste form qualification; and
- U.S. International Nuclear Safety Center.



ANL employee working in glovebox with anode assembly for prototype high-throughput electrorefiner. This experimental device is the forerunner of a production -scale electrorefiner capable of treating one ton of DOE spent fuel per day.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Electrometallurgical Treatment of DOE Spent Fuels	$ 15,559	$ 25,000	$ 25,000	$ 0	0
International Nuclear Safety Center	5,000	0	5,000	5,000	100
TOTAL, Nuclear Technology R&D	**$ 20,559**	**$ 25,000**[1]	**$ 30,000**	**$ 5,000**	**20**

III. Performance Summary

FY 1995 Accomplishments:

- Redirected ANL resources utilized on the Integral Fast Reactor (IFR)/Actinide Recycle Program to a higher priority DOE mission. This mission is identified as electrometallurgical R&D for the treatment of DOE spent fuels.
- Supported National Academy of Sciences study evaluating the use of electrometallurgical technologies as a means of treating DOE spent fuels.
- Completed an ANL program plan with a focus on electrometallurgical R&D technology activities.
- Initiated Ukraine Safety and Environmental Research and Development Center with support of U.S. national laboratories.

FY 1996 Accomplishments (to-date and planned):

- Continue electrometallurgical R&D for treatment of Experimental Breeder Reactor II (EBR-II) fuel and other DOE spent fuel types. Complete small-scale experiments (150Kg) using N-reactor fuel.
- Plan waste treatment R&D and waste form qualification to support selection of the preferred waste forms for treated spent DOE fuels.
- Complete physical properties measurement to support core melt experiment design and analysis.
- Complete Risk-Oriented Accident Analysis Methodology (ROAAM) evaluation on in-vessel retention of corium.

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[1]Funded in Defense Environmental Restoration and Waste Management.

FY 1997 Accomplishments (planned):

- Continue electrometallurgical R&D in support of EBR-II fuel and blanket treatment. Complete process demonstration with two DOE spent fuel types. Initiate experiments on high-speed/high throughput electrorefiner. Fabricate and test full-scale hot metal and mineral waste forms.
- Enhance U.S. laboratory and industry support of international nuclear safety center through cooperative research and development projects, such as diagnostic system monitoring techniques and utilization of RELAP5 codes supporting safety analyses of Russian RBMKs and VVERs.

Explanation of Funding Changes FY 1996 to FY 1997:

Program funding increase is for the operation of an International Safety Center at Argonne National Laboratory.

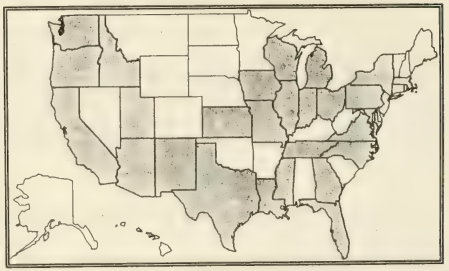
UNIVERSITY NUCLEAR SCIENCE AND REACTOR SUPPORT
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

The University Nuclear Science and Reactor Support program provides funding for educational and research grants to help maintain a stable human resource base in the nuclear sciences. The program also provides funding towards maintaining university reactors used for scientific research, education, and training. The nuclear sciences are an important contributor to the expanding environmental restoration , health, medicine, and research areas, as well as to traditional nuclear energy areas. Specific elements of the program include: university reactor fuel assistance, university reactor safety maintenance assistance, conversion of university reactors from highly enriched uranium (HEU) to low enrichment uranium (LEU) fuel cores, the DOE/Utility Matching Grants program, the University Reactor Sharing program, Historically Black Colleges and Universities (HBCU) and the Nuclear Engineering /Health Physics (NE & HP) Fellowship program.

Bowie State University	Rhode Island Nuclear Science Center
Coppin State College	State University of New York
Cornell University	Tennessee State University
Georgia Institute of Technology	Texas A&M University
Howard University	University of Arizona
Idaho State University	University of California-Berkeley
Iowa State University	University of California-Irvine
Jackson State University	University of Florida
Kansas State University	University of Illinois
Lincoln University	University of Maryland
Manhattan College	University of Massachusetts-Lowell
Massachusetts Institute of Technology	University of Michigan
Michigan State University	University of Missouri-Columbia
Morgan State University	University of Missouri-Rolla
Morris College	University of New Mexico
North Carolina State University	University of Texas
North Carolina A&T State University	University of Utah
North Carolina Central University	University of Virginia
Ohio State University	University of Washington
Oregon State University	University of Wisconsin
Pennsylvania State University	Virginia State University
Prairie View A&M University	Washington State University
Purdue University	Worchester Polytechnic Institute
Reed College	Xavier University
Rensselaer Polytechnic Institute	

Program Participants



States with Participating Universities

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
University Nuclear Science and Reactor Support	$3,505[1]	$ 3,500[1]	$ 6,950	$ 3,450	99

III. Performance Summary

FY 1995 Accomplishments:

- Developed and implemented university reactor fuel supply and HEU to LEU fuel conversion plan; continued reactor refuelings and spent fuel shipments and HEU to LEU conversions.
- Continue third year of DOE/utility matching grants program and provided grants to 17 universities. Continued university reactor sharing programs with 28 universities.
- Developed university reactor safety maintenance and upgrade plan.
- Provided financial assistance to 18 engineering students at 8 different Historically Black Colleges and Universities.

FY 1996 Accomplishments (to date and planned):

- Provide fellowships for 22 outstanding and promising United States M.S. and Ph.D. students engaged in nuclear science research and training at 9 different universities.
- Provide financial assistance to 18 engineering students at 8 different Historically Black Colleges and Universities.
- Supply fresh fuel for 8 university reactors and complete conversion of Georgia Tech reactor from HEU to LEU.
- Establish a faculty position to teach engineering to students from Morgan State, Coppin State, and Bowie State.
- Continue fourth year of DOE/utility matching grants program and provide grants to 17 universities.
- Begin implementation of university safety maintenance and upgrade plan.

[1]An additional $2,170,000 in FY 1995 and $1,000,000 in FY 1996 were made available from several Nuclear Energy Research and Development programs to support HBCU's and NE & HP fellowships.

FY 1997 Accomplishments:

- Provide fellowships for 22 outstanding and promising United States M.S. and Ph.D. students engaged in nuclear science research and training.
- Provide financial assistance to 18 engineering students at Historically Black Colleges and Universities.
- Continue to provide financial assistance for a faculty position to teach engineering to students from Morgan State, Coppin State, and Bowie State.
- Continue reactor refuelings and spent fuel shipments and HEU to LEU conversions.
- Complete last year of DOE/utility matching grants program. Evaluate continuation of program based on review of accomplishments, utility interest and available funds.
- Continue university reactor maintenance and safety upgrades.

Explanation of Funding Changes FY 1996 to FY 1997:

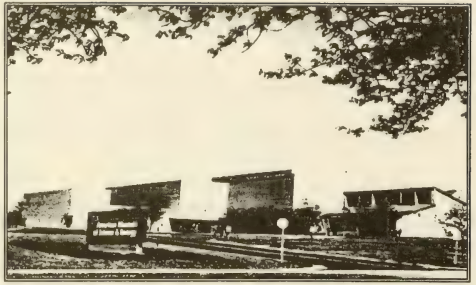
A review of recently updated university reactor maintenance surveys disclosed the need for selected improvements such as replacing or repairing reactor safety control channels, reactor control consoles, primary heat removal systems, safety and central rod drive systems and upgrading area radiation monitoring equipment. Funding for these activities was not available in FY 1996, therefore new funds are being requested.

In addition, during FY 1996, the Historically Black Colleges and Universities program was funded by prior year carryover funds available from later than anticipated awards of financial assistance agreements. These funds are not available to continue these activities in FY 1997 and new funds are being requested.

OAK RIDGE LANDLORD
($ in Thousands)

I. Mission Supporting Goals and Objectives

Oak Ridge Landlord provides for centralized Oak Ridge Operations Office (ORO) infrastructure requirements and general operating costs for those activities outside plant fences of the Oak Ridge National Laboratory (ORNL), the Y-12 Plant, and the K-25 Plant. Activities include environmental, safety and health (ES&H), and quality assurance facility compliance activities; ES&H upgrades of facilities at the Water Plant, which provides potable water for the Y-12 and ORNL Plants, as well as for the City of Oak Ridge; training and development activities; support to the Directives Management Group; technology development support to small and small disadvantaged businesses; maintenance of roads and grounds; operation of the American Museum of Science and Energy; operation of the Emergency Operations Center (EOC), which is responsible for emergency management at ORO; payment-in-lieu-of-taxes due to the local community; physical security; the ORO Financial Center Activities; and litigation expenses incurred by former DOE Management and Operation contractors.



American Museum of Science and Energy

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Operating	$ 9,988	$ 12,100	$ 12,100	$ 0	0
Capital Equipment	1,981	1,500	1,500	0	0
Construction	2,255	800	2,400	1,600	200
TOTAL, Oak Ridge Landlord	**$ 14,224**	**$ 14,400**	**$ 16,000**	**$ 1,600**	**11**

III. Performance Summary

FY 1995 Accomplishments:

- Continued operation of the American Museum of Science and Energy, which annually hosts an average of 200,000 visitors from all 50 states and from many foreign countries, and houses over 200 interactive exhibits.
- Continued ES&H upgrades to the Water Plant as required in order for water quality requirements mandated by the state and the EPA to be met. The Water Plant provides potable water to DOE facilities as well as the City of Oak Ridge. Also, completed design of control systems and performed seismic upgrades at the Water Plant.
- Coordinated emergency response activities for DOE/ORO operations and emergency support to the local area, both state and region.
- Continued inspection and maintenance of the Oak Ridge Reservation roads and grounds including 22 miles of paved roads and associated rights-of-way, 32 cemeteries, and 4 bridges.
- Developed training programs for employees; oversight of contractor training, and the performance of training and qualification surveillances per DOE Orders, and Defense Nuclear Facilities Safety Board (DNFSB) commitments.
- Provided information for the President's Advisory Committee Report on Human Radiation Experimentation (HRE).
- Began the renovation of office space to house MK-Ferguson employees.

FY 1996 Accomplishments (to date and planned):

- Continue operation of the Museum and the EOC and continued inspection and maintenance of roads and grounds.
- Continue ES&H upgrades at the Water Plant and other DOE-owned facilities including HVAC systems, sprinkler systems, restroom facilities, the establishment of areas to accommodate the storage and reuse of tools that are within tolerable contamination limits to reduce costs associated with decontamination and replacement.
- Identification, packaging, and shipment of documents relating to HRE to the National Archives for permanent storage.
- Continue to provide documentation to litigants in suits relating to HRE, as well as continued large-scale declassification efforts.
- Implement the ORO Financial Center to enable the consolidation of various accounting functions in FY 1997.

FY 1996 Accomplishments (to date and planned): - continued

- Continue responses to DNFSB recommendations involving the directives management, training and development, emergency management, and ES&H activities.
- The first quarter's payment of payment-in-lieu-of-taxes, which is effective October 1, 1995.
- Water Plant Controls Modernization, Phase I - Design for controls and instrumentation at the main treatment building site of the Water Plant.
- Payment of litigation expenses for class action lawsuits filed against former DOE Management and Operating (M&O) contractors.

FY 1997 Accomplishments:

- Continuation of ongoing activities identified above, with the exception of HRE activities.
- Payment of the calendar year 1996 payment-in-lieu-of-taxes, which renders financial assistance to state and local governments on DOE lands.
- Upgrade of the air-conditioning system and the removal of asbestos containing materials duct work at DOE-owned facilities.
- Consolidation of various accounting functions in various DOE offices to the ORO Financial Center.

Explanation of Funding Changes FY 1996 to FY 1997:

Construction - The increase of $1,600,000 will provide for upgrade of air conditioning system and removal of asbestos containing material ductwork at DOE owned facilities, and for seismic upgrades at the Water Plant to resolve the seismic stability problem near the 4 million gallon reservoir.

TRA LANDLORD
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

Test Reactor Area (TRA) Landlord activities include operating support, equipment procurement, General Plant Projects (GPP), and Line Item Capital Projects (LICP) to ensure the safety and reliability of TRA site facilities.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
TRA Landlord	$ 3,951	$ 3,900	$ 4,000	$ 100	3
TOTAL, TRA Landlord	**$ 3,951**	**$ 3,900**	**$ 4,000**	**$ 100**	**3**

III. Performance Summary

FY 1995 Accomplishments:

- Conducted landlord operating support activities including planning, readiness reviews, training, and system operational testing of landlord funded GPP and LICP projects at TRA.
- Corrected Environment, Safety and Health (ES&H) deficiencies identified during inspections and self-assessments. GPP funding supported TRA site activities.
- Provided surveillance and maintenance of spent nuclear fuel storage areas.
- Commenced Title II Design for the TRA Fire and Life Safety Improvements.
- Fire and Life Safety Improvements at TRA include replacement of deficient fire barriers and addition of automatic fire suppression systems to meet applicable codes, modification of existing Heating, Ventilation, and Air Conditioning systems, expansion of fire detection systems, and addition of a redundant fire water supply.

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FY 1996 Accomplishments (to date and planned):

- Conduct landlord operating support activities including planning, readiness reviews, training, and system operational testing of landlord funded GPP and LICP projects at TRA.
- Correct ES&H deficiencies identified during inspections and self-assessments.
- Complete Title II Design for the TRA Fire and Life Safety Improvements.

FY 1997 Accomplishments:

- Conduct landlord operating support activities including planning, readiness reviews, training, and system operational testing of landlord funded GPP and LICP projects at TRA.
- Correct ES&H deficiencies identified during inspections and self-assessments.
- Initiate construction for the TRA Fire and Life Safety Improvements.

Explanation of Funding Changes FY 1996 to FY 1997:

An increase of $100,000 in FY 1997 will enable the program to meet minimum maintenance and site upgrade requirements.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT

CONSTRUCTION PROJECT DATA SHEET
TRA LANDLORD
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and location of project:	TRA Fire and Life Safety Improvements Idaho National Engineering Laboratory, Idaho	2a. 2b.	Project No.: 95-E-201 Construction Funded
3a. Date A-E work initiated:	2nd Quarter FY 1995	5.	Previous cost estimate: Total Estimated Cost (TEC) -- $ 21,320 Total Project Cost (TPC) -- $ 23,630
3b. A-E work (Title I & Title II duration):	21 months		
4a. Date physical construction started:	3rd Quarter FY 1995	6.	Current Cost Estimate: TEC -- $ 15,446 TPC -- $ 17,011
4b. Date construction ends:	4th Quarter FY 1999		

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustment	Obligations	Costs
1995	$ 1,716 [1]	$ 0	$ 1,696	$ 1,596
1996	1,900	0	1,900	2,000
1997	1,000	0	1,000	1,000
1998	5,425	0	5,425	4,950
1999	5,425	0	5,425	5,900

[1] Reflects Adjusted Appropriation after distribution of general reduction within the Office of Nuclear Energy, Science and Technology.

1. Title and location of project: TRA Fire and Life Safety Improvements Idaho National Engineering Laboratory, Idaho

2a. Project No.: 95-E-201
2b. Construction Funded

8. Project Description, Justification and Scope:

The Test Reactor Area (TRA) Fire and Safety Improvements project provides for the design, procurement, and construction activities to correct fire protection and life safety code deficiencies at the TRA. Corrections consist of:

a) Modifications to or replacement of deficient fire barriers to meet code and reduce Maximum Possible Fire Loss (MPFL) or smoke damage impacts to property and personnel.

b) Additions, modifications, or new automatic fire suppression systems to meet code requirements for operations personnel life safety and to reduce Maximum Credible Fire Loss (MCFL) potentials to acceptable improved risk levels as required by DOE Order 5480.7.

c) Additions or modifications to existing building heating and ventilating systems to control fire and smoke spread, upgrades or replacement of interior doors to provide smoke and fire barriers, protection of structural support members, and sealing of penetrations in fire barriers (existing walls and floors) to provide effective control of property damage and life safety protection.

d) Modifications and expansions of the fire detection and alarm system and removal of obsolete equipment to meet codes, site-wide system compatibility, monitoring and life safety requirements.

e) Addition of fully redundant water supply, consisting of new UL-listed and FM-approved fire pumps and a tank capable of delivering 100 percent of the highest demand for volume, pressure, and duration to meet reliability requirements of DOE Order 5480.7.

This project provides for design, procurement, and construction activities to correct fire protection and life safety code deficiencies at the TRA. Fire protection is a part of the Idaho National Engineering Laboratory (INEL) site-wide safety program to provide a safe working and operating environment. The corrections to be provided by the project are required to bring systems and facilities into compliance with fire and life safety requirements of the DOE regulations and national codes and standards. Numerous fire protection and life safety deficiencies have been identified during the current and ongoing appraisals conducted by DOE-Idaho Operations Office and Lockheed Martin Idaho Technologies contractor fire protection personnel.

Buildings constructed prior to current National Fire Protection Agency (NFPA), Uniform Building Code (UBC), and Life Safety Codes and Standards require upgrades to provide fire suppression systems, fire walls in corridors, stairwells, new exits and upgrades to existing exits, installation of fire separation walls and smoke dampers, and installation of new and upgrade of existing fire alarm and detection systems.

1. Title and location of project: TRA Fire and Life Safety Improvements, Idaho National Engineering Laboratory, Idaho

2a. Project No.: 95-E-201
2b. Construction Funded

8. Project Description, Justification and Scope (continued):

Modifications and upgrades to existing fire protection systems, installation of new systems, and upgrades to existing facilities will bring occupied TRA facilities in compliance with national codes and standards and DOE regulations.

9. Details of cost estimate:

		Item Cost	Total Costs
a.	Design and Management Costs		$ 4,645
	(1) Engineering, design and inspection at approximately 19% of construction costs, Item c.d (Design, Drawings, and Specifications: $830	$1,655	
	(2) Construction management	1,420	
	(3) Project Administration	1,570	
b.	Land and land rights		
c.	Construction costs		8,710
	(1) Improvements to land (Grading, paving, and drainage)	110	
	(2) Buildings (New Pump House and modifications to a number of existing facilities)	4,500	
	(3) Other structures (New 1,000,000 gal Water Storage Tank)	1,600	
	(4) Utilities (Fire Water Lines and Power for and alarms for new/existing buildings and structures)	2,500	
	(5) Special Facilities	0	
d.	Standard Equipment		11
e.	Major computer items		0
f.	Removal costs less salvage		0
g.	Design and project liaison, testing, checkout and acceptance		0
	Subtotal		$13,366
h.	Contingency at 16% above cost		2,080
i.	Total line item cost (Section 12.a.1.a(a))		15,446
j.	Non-Federal Contribution.		0
	Net Federal total estimated cost (TEC)		$ 15,446

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1. Title and location of project: TRA Fire and Life Safety Improvements, Idaho National Engineering Laboratory, Idaho

2a. Project No.: 95-E-201
2b. Construction Funded

10. Method of performance:

Project management, design, inspection and construction management will be performed by the operating contractor. Construction will be performed under subcontracts awarded on the basis of competitive bidding.

11. Schedule of project funding and other related funding requirements:

a. Total Project Costs	Prior Year	FY1993	FY 1994	FY 1995	FY1996	FY 1997	FY1998	FY1999	Total
(1) Total facility costs									
(a) Line item (section 10.1)	$ 0	$ 0	$ 0	$1,696	$1,900	$1,000	$5,425	$5,425	$15,446
(b) Oper. Exp. Funded equip.	0	0	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0	0	0
Total facility costs (Federal & non federal)	$ 0	$ 0	$ 0	$1,696	$1.900	$1,000	$5,425	$5,425	$15,446
(2) Other project costs									
(a) R&D Necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	350	0	0	0	0	0	0	0	350
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0	0	0	0
(d) NEPA Documentation Costs	0	0	11	5	0	0	0	0	16
(e) Other proj-related costs	0	0	190	69	101	117	326	396	1,199
Total other proj-costs	350	0	201	74	101	117	326	396	1,565
Total project costs	$ 350	$ 0	$ 201	$1,770	$2,001	$1,117	$5,751	$5,821	$17,011
(f) Non Federal Contribution	0	0	0	0	0	0	0	0	0
Net Federal Total Project Cost (TPC)	$ 350	$ 0	$ 201	$ 1,770	$ 2,001	$ 1,117	$ 5,751	$ 5,821	$17,011

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1. Title and location of project: TRA Fire and Life Safety Improvements, Idaho National Engineering Laboratory, Idaho

2a. Project No.: 95-E-201
2b. Construction Funded

11. Schedule of project funding and other related funding requirements (continued):

b. Related Annual Costs

(1)	Total facility operating costs	$ 1
(2)	Facility maintenance and repair costs	0
(3)	Programmatic operating expenses directly related to the facility	10
(4)	Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5)	GPP or other construction related to the programmatic effort in the facility	0
(6)	Utility Costs	0
(7)	Other Costs	0
	Total related annual funding	$ 11

12. Narrative explanation of total project funding and other funding requirements:

a. Total Project Costs

(1) Total facility cost - The total facility cost is based upon the conceptual design that was completed in February 1992 with schedule and escalation revised in December 1992. The Conceptual Design Cost Estimate was prepared utilizing the INEL Cost Estimating Manual and DOE Order 5700.2C.

(a) Line item - Narrative not required.

(b) Operating Expenses funded equipment - Narrative not required.

(c) Inventories - Narrative not required.

13. Design and Construction of Federal Facilities:

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards," section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988.

ATR FUSION IRRADIATIONS
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

This activity provides for the planned transfer of irradiations in support of the Department of Energy/Monbusho Fusion Energy program to the Advanced Test Reactor (ATR). This program was being conducted in the Fast Flux Test Facility when it was placed in standby on April 1, 1992. The DOE/Monbusho irradiations were subsequently planned for transfer to the Experimental Breeder Reactor (EBR-II) for completion. With the shutdown of EBR-II, the irradiation programs are being transferred to the ATR.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
ATR Fusion Irradiations	$ 2,340	$ 2,303	$ 800	$ -1,503	-65
TOTAL, ATR Fusion Irradiations	**$ 2,340**	**$ 2,303**	**$ 800**	**$ -1,503**	**-65**

III. Performance Summary

FY 1995 Accomplishments:

- Provided funding for the planned transfer of the fusion irradiation program to ATR. Activities included design of an irradiation test assembly for the program.

FY 1996 Accomplishments (to date and planned):

- Continue design of the irradiation test assembly for the fusion irradiation program.

FY 1997 Accomplishments:

- Resume design and initiate fabrication of the irradiation test assembly required to conduct the fusion irradiation program in the ATR. Fabrication, installation and testing will be completed by the end of FY 1998 when fusion materials irradiations are scheduled to begin. Funding for the actual experiment irradiations will be provided by the Office of Energy Research.

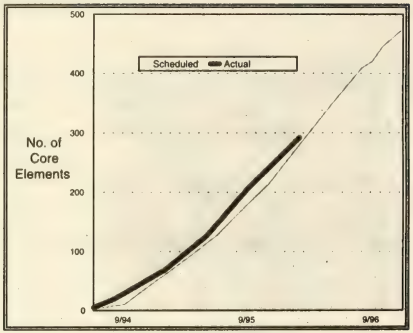
Explanation of Funding Changes FY 1996 to FY 1997:

Based on schedule changes in the Office of Energy Research's fusion program, $1,400,000 of the FY 1996 appropriation was available and used to offset a Congressionally mandated general reduction. Therefore, the actual programmatic reduction between FY 1996 and FY 1997 is $103,000. This reduction is consistent with the revised testing schedule.

OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY
TERMINATION COSTS

PROGRAM MISSION

The Termination Costs program provides funding to conduct the activities necessary to terminate the Gas-Turbine Modular Helium Reactor (GT-MHR) program and to place unneeded Office of Nuclear Energy, Science and Technology (NE) facilities into an industrially and radiologically safe shutdown condition. Shutdown activities are currently underway at the Experimental Breeder Reactor II (EBR-II) and other surplus facilities at the Argonne National Laboratory-West (ANL-W) site near Idaho Falls, Idaho. The shutdown provides for defueling the EBR-II core; draining the sodium coolant from EBR-II; sealing the EBR-II primary and secondary cooling systems; treating the EBR-II spent fuel and blanket subassemblies; and processing the EBR-II and other sodium in the Sodium Processing Facility.



EBR-II Defueling Schedule
In FY 1996, remove 214 core elements from the EBR-II Reactor.

The GOALS of the Termination Costs program are to:

1. Deactivate the GT-MHR program facilities and provide for associated costs.

2. Place the EBR-II and other surplus facilities into an industrially and radiologically safe shutdown condition by the end of FY 1998.

The OBJECTIVES related to these goals are:

1. Shutdown surplus facilities in cooperation with other government entities.

2. Manage the safe storage, processing, and, in coordination with the Office of Environmental Management (EM), the disposition of spent fuel and waste materials.

3. Place surplus facilities into a safe shutdown condition requiring minimum surveillance and maintenance; transfer facilities to EM for further decontamination and decommissioning, environmental restoration or other appropriate disposition.

PERFORMANCE MEASURES:

- Complete EBR-II defueling by the end of the first quarter of FY 1997.
- Complete GT-MHR program termination in FY 1997.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- In FY 1995, EBR-II operation at ANL-W was ceased and shutdown was initiated in October 1994. Shutdown activities include defueling of EBR-II, manufacturing and insertion of dummy subassemblies, and FCF modifications to enable treatment of spent fuel and blankets to place into a storable form.
- Shutdown of TREAT at ANL-W was initiated in FY 1995 and will be completed in FY 1996.
- In FY 1996, defueling of EBR-II and preparations to treat spent fuel are continuing.
- In FY 1996, prepare Environmental Assessment covering the proposed demonstration of electrometallurgical technology for treating EBR-II spent fuel and blankets.
- In FY 1997, complete EBR-II defueling; initiate treatment of EBR-II sodium in the Sodium Processing Facility, and demonstrate treatment of fuel and blankets in the FCF.
- In FY 1998, complete shutdown of EBR-II and other unneeded ANL-W facilities, including the treatment of sodium; and continue the fuel treatment demonstration.
- Surplus facilities transferred to EM in FY 1996 include the Tower Shielding Facility and the Integrated Process Demonstration Facility (IPDF) at ORNL, and the Power Burst Facility and the Advanced Reactivity Measurements Facility/Coupled Fast Reactivity Measurements Facility at INEL.
- Termination of the GT-MHR program was initiated in FY 1996.

TERMINATION COSTS

PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Termination	**$ 69,215**	**$ 80,700**	**$ -1,529**	**$ 79,171**	**$ 79,100**

TERMINATION COSTS

PROGRAM FUNDING BY SITE
(Dollars in Thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Chicago Operations Office					
Argonne National Laboratory -(East)	$ 2,600	$ 2,600	$ 0	$ 2,600	$ 1,800
Argonne National Laboratory-(West)	63,871	66,300	0	66,300	69,400
Idaho Operations Office					
Idaho National Engineering Laboratory	1,170	75	0	75	0
Oakland Operations Office					
Energy Technology Engineering Center	0	703	-703	0	0
Oak Ridge Operations Office					
Oak Ridge National Laboratory	1,112	1,035	0	1,035	2,500
All Other Sites	462	9,987	-826	9,161	5,400
TOTAL	**$ 69,215**	**$ 80,700**	**$-1,529[1]**	**$ 79,171**	**$ 79,100**

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[1]Includes prior year balances for the Indian Energy Project and the Energy Technology Engineering Center.

TERMINATION COSTS

PROGRAM OBJECT CLASS SUMMARY
(Dollars in Thousands)

	FY 1995 Comp.	FY 1995 Non-comp.	FY 1996 Comp.	FY 1996 Non-comp.	FY 1997 Request
Personnel Compensation:	$ 68,215	$ 68,215	$ 76,171	$ 77,700	$78,100
25.2 Other services	1,000	1,000	3,000	3,000	1,000
31.0 Equipment	**$ 69,215**	**$ 69,215**	**$ 79,171**	**$ 80,700**	**$79,100**
99.9 TOTAL					

OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY
CAPITAL OPERATING EXPENSES AND CONSTRUCTION SUMMARY

TERMINATION COSTS
(Dollars in Thousands)

Capital Operating Expenses	FY 1995	FY 1996	FY 1997	$ Change	% Change
GPP	$ 2,194	$ 0	$ 2,000	$ 2,000	100
Modifications to Reactors	$ 3,511	$ 1,700	$ 2,200	$ 500	29
Capital Equipment	$ 1,000	$ 3,000	$ 1,000	$ -2,000	-67

TERMINATION COSTS
(Dollars in Thousands)

I. Mission Supporting Goals and Objective

Complete termination of GT-MHR program consistent with Congressional action on the DOE FY 1996 Budget.

Complete defueling and closure of the EBR-II and the shutdown of other surplus ANL-W facilities by the end of FY 1998.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Gas Turbine-Modular Helium Reactor	$ 0	$ 7,500	$ 6,000	$ -1,500	-20
Argonne National Laboratory West	66,471	68,900	71,200	2,300	3
Tower Shielding Facility	500	0	0	0	0
Consolidated Fuel Reprocessing Facility	612	0	0	0	0
Power Burst Facility	1,100	0	0	0	0
Advanced Reactivity Measurements Facility/Coupled Fast Reactivity Measurements Facility	70	0	0	0	0
Other	462	2,771	1,900	-871	-31
TOTAL, Termination Costs	**$ 69,215**	**$ 79,171**	**$ 79,100**	**$ -71**	**0**

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III. Performance Summary

FY 1995 Accomplishments:

- During FY 1995, permanent shutdown of the EBR-II was initiated on October 1, 1994. The FCF was modified and prepared for electrometallurgical treatment of EBR-II fuel and blankets to place in a suitable form for long term storage. Conceptual design was completed on the Sodium Processing Facility (SPF).

- Surveillance and maintenance activities necessary to maintain the Tower Shielding Facility (TSF) at ORNL and the Power Burst Facility (PBF) and the Advanced Reactivity Measurements Facility/Coupled Fast Reactivity Measurements Facility (ARMF/CFRMF) at INEL in safe shutdown conditions were performed.

- Surveillance and maintenance activities necessary to maintain the IPDF at ORNL in a safe shutdown condition were performed. Shipment of in-process materials off-site was initiated and remaining materials were prepared for transfer to an off-site facility.

- Procure and install equipment to support the shutdown. Conduct GPP to support site activities. Initiate modifications to the Sodium Processing Facility. Perform required maintenance and upgrades on the EBR-II fuel handling system required for shutdown activities.

FY 1996 Accomplishments (to date and planned):

- Complete EBR-II blanket assembly removal. Complete construction of the modified SPF. Treat EBR-II fuel assemblies in the FCF.

- Transfer TSF and IPDF at ORNL and the PBF and the ARMF/CFRMF at INEL to EM.

- Procure and install equipment to support the shutdown. Conduct GPP to support site activities. Complete modification of the Sodium Processing Facility.

- Initiate GT-MHR termination.

FY 1997 Accomplishments:

- Complete defueling of the EBR-II and continue treatment of EBR-II driver fuel in the FCF. Initiate treatment of blanket assemblies in the FCF. Process Fermi reactor sodium and initiate processing of EBR-II secondary system sodium.

- Procure and install equipment to support the shutdown. Conduct GPP to support site activities. Perform upgrades to the Hot Fuel Examination Facility required to prepare fuel and blanket assemblies for treatment. Modify the EBR-II primary and secondary sodium systems to permit draining and closure of the systems.

- Complete GT-MHR termination.

Explanation of Funding Changes FY 1996 to FY 1997:

Program is continuing at effectively the same level.

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NUCLEAR ENERGY R&D
PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities

As a result of substantial reductions in staffing and other administrative expenses, separate Policy and Management and Program Direction accounts have been eliminated and a single Program Direction account is being established in FY 1997 for the Office of Nuclear Energy, Science and Technology. The Program Direction account supports Headquarters and Operations Office personnel providing technical direction to Nuclear Energy Research and Development activities, as well as energy research reactor operations (which are funded by the Office of Energy Research), the shutdown of the Fast Flux Test Facility (FFTF) (which is funded in the Environmental Management (EM) non-defense account), the high priority U. S. Government program which provides reactor safety assistance to Russia, Ukraine, and the Central and Eastern European countries (which is funded in the Other Defense Activities Appropriation) and activities funded by other Federal agencies, the nuclear industry and foreign governments. This activity also includes funding for administrative expenses, such as: training, computer support, including hardware and software acquisitions, modifications, and other telecommunications services for work stations. In FY 1997 a Working Capital Fund is being established to provide funding for common administrative services, such as rent and utilities, provided by the Department's central administrative offices. Previously, these costs were included in the DOE's Departmental Administration Appropriation.

II. Funding Table

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Summary - Budget					
Headquarters Funding	$ 19,684	$ 9,314	$ 6,157[2]	$ 15,471	$ 15,104
Field Funding	3,730	3,686	0	3,686	3,396
TOTAL BUDGET	**$ 23,414[1]**	**$ 13,000**	**$ 6,157**	**$ 19,157[1]**	**$ 18,500**

[1]$4,040,055 unobligated carryover from FY 1995 used to support the program in FY 1996.

[2]Includes $2,117,000 for Working Capital Fund and $4,040,055 FY 1995 unobligated carryover.

II. Funding Table - continued	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Summary - Strategic Alignment Staffing Targets					
Headquarters End of Year Staffing					
Program Direction	**126**			**114**	**99**
Isotope Prod. and Dist.	10			9	9
Uranium Programs	17			16	15
TOTAL, HEADQUARTERS	153			139	123
Field End of Year Staffing					
Program Direction	**39**			**33**	**30**
Isotope Prod. and Dist.	1			1	1
Uranium Programs	35			35	29
TOTAL, FIELD	75			69	60
Detailed Breakout					
Chicago					
Salary and Benefits	$ 1,136	$ 1,170	$ 0	$ 1,170	$ 1,105
Travel	61	50	0	50	50
Support Services	0	0	0	0	0
Other Related Expenses	83	25	0	25	25
Total	$ 1,280	$ 1,245	$ 0	$ 1,245	$ 1,180
End of Year Staffing	12			12	11
Average Salaries and Benefits	$95			$97	$96
Idaho					
Salary and Benefits	$ 100	$ 90	$ 0	$ 90	$ 95
Travel	33	10	0	10	10
Support Services	0	0	0	0	0
Other Related Expenses	-25	5	0	5	5
Total	$ 108	$ 105	$ 0	$ 105	$ 110
End of Year Staffing	1			1	1
Average Salaries and Benefits	$100			$90	$95

II. Funding Table - continued	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Oak Ridge					
Salary and Benefits	$ 1,027	$ 1,020	$ 0	$ 1,020	$ 980
Travel	66	59	0	59	59
Support Services	0	0	0	0	0
Other Related Expenses	187	225	0	225	225
Total	$ 1,280	$ 1,304	$ 0	$ 1,304	$ 1,264
End of Year Staffing	14			10	10
Average Salaries and Benefits	$73			$93	$98
Oakland					
Salary and Benefits	$ 435	$ 450	$ 0	$ 450	$ 330
Travel	42	30	0	30	30
Support Services	0	0	0	0	0
Other Related Expenses	35	40	0	40	40
Total	$ 512	$ 520	$ 0	$ 520	$ 400
End of Year Staffing	5			4	3
Average Salaries and Benefits	$87			$100	$94
Richland					
Salary and Benefits	$ 515	$ 495	$ 0	$ 495	$ 425
Travel	35	17	0	17	17
Support Services	0	0	0	0	0
Other Related Expenses	0	0	0	0	0
Total	$ 550	$ 512	$ 0	$ 512	$ 442
End of Year Staffing	7			6	5
Average Salaries and Benefits	$74			$76	$77
Headquarters					
Salary and Benefits	$ 12,205	$ 8,592	$ 2,343	$ 10,935	$ 10,250
Travel	855	200	274	474	474
Support Services	1,269	0	0	0	972
Other Related Expenses	5,355	522	3,540	4,062	3,408
Total	$ 19,684	$ 9,314	$ 6,157	$ 15,471	$ 15,104
End of Year Staffing	126			114	99
Average Salaries and Benefits	$97			$91	$96
TOTAL	$ 23,414	$ 13,000	$ 6,157	$ 19,157	$ 18,500

III. Performance Summary

FY 1995 Measurable Performance Activities:

Completed second year of NE Headquarters streamlining and downsizing. Overall NE accomplishments (from FY 1993 baseline) which include all Program Direction activities are:

- Reducing Headquarters staff from 258 to 148 (41 percent reduction)
- Reducing the number of senior executive positions from 22 to 7 (68 percent reduction)
- Increasing employee to supervisor ratio from 2:1 to 10:1
- Reducing reliance on support service contracts by 38 percent
- Reducing the number of support service contractors occupying NE office space by 50 percent (from 24 to 12)

FY 1996 Measurable Performance Activities:

The key benchmarks by which NE will measure its FY 1996 streamlining performance are:

- Reducing Headquarters staff to 139
- Reducing senior executive positions to six
- Increasing the employee to supervisor ratio to 11:1
- Reducing travel by 20 percent from FY 1995 level
- Reducing reliance on support service contracts by 15 percent from FY 1995 level

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FY 1997 Measurable Performance Activities:

The key benchmarks by which NE will measure its FY 1997 streamlining performance are:

- Reducing Headquarters staff to 123 (a 52 percent reduction since 1993)
- Increasing the employee to supervisor ratio to 12:1
- Reducing senior executive positions to five
- Reducing reliance on support service contractors by 15 percent from FY 1995 level

IV. Explanation of Funding Changes FY 1996 to FY 1997:

The decrease of $657,000 for program direction primarily results from the reduction in Headquarters staffing and other related expenses. This reduction was partially offset by one time costs associated with retirement buyout payments and an increase in the estimate for the working capital fund established to allocate funding to Departmental Elements for common administrative services, such as rent and utilities, provided by the Department's central administrative office.

V. Explanation of Average FTE Costs:

The average employee costs are based on detailed calculations of employee salary costs (adjusted for escalation), benefits (life insurance, Medicare, and retirement), and other personnel compensation (such as awards and overtime). The average costs per employee does not include other expenses such as the working capital fund and travel, since this has been centrally budgeted for all NE Headquarters employees. The average employee costs are calculated using the midpoint of beginning of year and end of year staffing levels.

The overall average NE Headquarters employee salary and benefits cost is $95,000. The average NE Headquarters Nuclear Energy R&D employee salary and benefits cost is $96,000. The variance is negligible.

The overall average NE Field employee salary and benefits cost is $91,000. The average NE Field Nuclear Energy R&D employee salary and benefits cost is $95,000. The variance is negligible.

The average "fully loaded" employee costs are to include an allocation of expenses for rent, utilities, telecommunications, materials and supplies, etc., as well as salaries and benefits. These costs, for Headquarters and Field employees, are shown below:

Cost Category	Average per Headquarters Employee	Average per Field Employee
Salary and Benefits	95	91
Travel	7	5
Rent and Utilities	6	-
Contract Audits	3	-
ADP Support	3	-
Other Expenses	6	17
Total Average	120	113

- Does not include:
  - support services costs which are predominantly funded by program operating expenses;
  - travel by other federal agency employees (e.g., State Department travel related to transparency measures program activities);
  - other expenses not related to federal staffing (e.g., funding for New Brunswick Laboratory employees related to transparency measures monitoring activities in Russia); and
  - retirement "buyout" payments and related expenses.

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NUCLEAR ENERGY R&D

PROGRAM DIRECTION OBJECT CLASS SUMMARY
(Dollars in Thousands)

Personnel Compensation:	FY 1995 Comp.	FY 1995 Non-comp.	FY 1996 Comp.	FY 1996 Non-comp.	FY 1997 Request
11.1 Full-time permanent	$ 12,245	$ 12,245	$ 11,599	$ 9,606	$ 10,785
11.3 Other than full-time permanent	290	290	150	150	150
11.5 Other personnel compensation	356	250	357	250	372
11.9 Total Personnel Compensation	12,891	12,785	12,106	10,006	11,307
12.1 Civilian personnel benefits	2,680	2,633	2,208	1,811	2,054
21.0 Travel and transportation of persons	1,092	1,092	640	366	640
23.1 Rental payments to GSA	957	0	969	0	1,102
23.3 Communications, utilities, and miscellaneous charges	390	0	395	0	448
24.0 Printing and reproduction	88	0	89	0	101
25.1 Advisory and assistance services	1,269	1,269	0	0	972
25.2 Other services	3,569	3,545	2,266	817	1,326
25.3 Purchases of goods & services from Gov't accounts	417	0	422	0	480
26.0 Supplies and materials	61	0	62	0	70
99.9 TOTAL	**$ 23,414**	**$ 21,324**	**$ 19,157**	**$ 13,000**	**$ 18,500**

OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY
ISOTOPE SUPPORT

PROGRAM MISSION

The Isotope Support decision unit will fund a payment into the Isotope Production and Distribution (IP&D) program to assure adequate supplies of isotopes necessary for the national interest, and for supporting our health care system. Specifically, requested funding is to maintain financial continuity of radioactive and stable isotope production, processing, distribution, and associated services to commercial and research customers. Funding will also be used to support radioisotopes and enriched stable isotopes for research or development, medical diagnosis and therapy, other applications in the national interest, calutron operations to replenish inventories, funding for the TRA Hot Cells at the Idaho National Engineering Laboratory, and administrative activities. Additionally, the Department is studying the possibility of producing Molybdenum-99 (Mo-99), an isotope used in over 36,000 medical procedures per day in the U.S. The U.S. supply currently depends on a single aging reactor in Canada and the U.S. medical community has expressed serious concern about the reliability of supply. The decision whether to produce Mo-99 will be made after the Record of Decision of the Environmental Impact Statement currently underway.

The GOAL of the Isotope Support program is to:

Provide financial viability of the IP&D program.

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ISOTOPE SUPPORT

PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Isotope Support					
Operating Expenses	$ 20,875	$ 24,658	$ 0	$ 24,658	$ 12,704

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ISOTOPE SUPPORT

PROGRAM FUNDING BY SITE
(Dollars in Thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Albuquerque Operations Office					
Los Alamos National Laboratory	$ 2,125	$ 1,500	$ 0	$ 1,500	$ 1,400
Mound Plant	1,300	1,200	0	1,200	500
Sandia National Laboratories	7,600	12,000	0	12,000	0
Chicago Operations Office					
Brookhaven National Laboratory	428	1,100	0	1,100	1,600
Idaho Operations Office					
Idaho National Engineering Laboratory	1,960	600	0	600	2,000
Oak Ridge Operations Office					
Oak Ridge National Laboratory	3,620	2,200	0	2,200	2,000
Richland Operations Office					
Westinghouse Hanford Company	400	400	0	400	750
Pacific Northwest Laboratory	800	775	0	775	0
All Other Sites	2,642	4,883	0	4,883	4,454
TOTAL	**$ 20,875**	**$ 24,658**	**$ 0**	**$ 24,658**	**$ 12,704**

ISOTOPE SUPPORT

PROGRAM OBJECT CLASS SUMMARY
(Dollars in Thousands)

	FY 1995 Comp.	FY 1995 Non-comp.	FY 1996 Comp.	FY 1996 Non-comp.	FY 1997 Request
25.2 Other services	$ 17,466	$ 16,065	$ 23,078	$ 23,078	$ 11,124
31.0 Equipment	1,344	1,344	0	0	0
99.9 TOTAL	**$ 18,810**	**$ 17,409**	**$ 23,078**	**$ 23,078**	**$ 11,124**

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ISOTOPE SUPPORT
(Dollars in Thousands)

I. Mission Supporting Goals and Objective

The Department, through the IP&D program, provides radioactive and stable isotope products and associated services to a wide and varied domestic and international market. Ultimate applications of isotopes products include medical research and health care, industrial research and manufacturing, education, and national defense. The IP&D program has two primary missions. The first mission is to produce and distribute certain low-volume radioisotopes and enriched stable isotopes for research and development, medical diagnoses and therapy, and other applications that are in the national interest. The second mission is to produce and distribute high-volume radioisotopes and enriched stable isotopes that have profit potential for medical, industrial, and other useful applications on a business-like basis.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Isotope Production & Distribution	18,810	23,078	11,124[1]	-11,954	-52
Program Direction	2,065	1,580	1,580	0	0
TOTAL, Isotope Support	**$ 20,875**	**$ 24,658**	**$ 12,704**	**$ -11,954**	**-48**

III. Performance Summary

FY 1995 Accomplishments:

- Completed the environmental evaluation as part of the National Environmental Protection Act process for Mo-99 initiative.
- Restarted calutrons at Oak Ridge to provide essential medical and research isotopes.
- Executed five isotope CRADAs for advancing isotope production and processing techniques.
- Achieved gross profit of more than 10 percent.

[1] This line item includes the Department activity to establish a domestic source of Mo-99; additional funds will be provided within the overall DOE budget pending the conclusion of the Environmental Impact Statement during the Spring of 1996.

FY 1995 Accomplishments: - continued

- Increased revenues by 15 percent.
- Achieved 90 percent on-time deliveries.
- Provided for continued study of Mo-99 initiative, including environmental evaluation and process validation.
- Maintained financial viability of the IP&D program through its revenues and the Isotope Support decision unit.
- Assured an adequate supply of isotopes to be used for medical diagnoses and therapy, other applications in the national interest, calutron operations to replenish inventories, and administrative activities.

FY 1996 Accomplishments (to date and planned):

- Determine whether to produce Mo-99, pending result of the Environmental Impact Statement.
- Achieve 95 percent on-time deliveries.
- Achieve gross profit of 12 percent.
- Increase overall revenues from isotope sales by 5 percent (if some DOE production facilities are privatized, DOE's share of revenues will decrease).
- Maintains financial viability of the IP&D program.
- Assures an adequate supply of isotopes to be used for medical diagnoses and therapy, other applications in the national interest, calutron operations to replenish inventories, and administrative activities.

FY 1997 Accomplishments:

- Obtain Food and Drug Administration (FDA) approval for domestic Mo-99 production, if initiative is pursued.
- Plan and fund prioritized process development projects.
- Achieve gross profit by 15 percent.

FY 1997 Accomplishments: - continued

- Stabilize revenues.
- Continue calutron operations for the production of stable isotopes.
- Assure an adequate supply of isotopes to be used for medical diagnoses and therapy, other applications in the national interest, calutron operations to replenish inventories, and administrative activities.

ISOTOPE SUPPORT
PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities

The Program Direction account supports salaries, benefits, travel, and miscellaneous supplies or services to Headquarters and Operations Office personnel providing technical direction to the Office of Isotope Production and Distribution. This activity also includes funding for administrative expenses, such as: training, computer support, including hardware and software acquisitions, modifications, and other telecommunications services for workstations.

II. Funding Table

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Summary - Budget					
Headquarters Funding	$ 1,945	$ 1,445	$ 0	$ 1,445	$ 1,445
Field Funding	120	135	0	135	135
TOTAL, BUDGET	**$ 2,065**	**$ 1,580**	**$ 0**	**$ 1,580**	**$ 1,580**
Summary - Strategic Alignment Staffing Targets					
Headquarters End of Year Staffing					
Program Direction	126			114	99
Isotope Production and Dist.	**10**			**9**	**9**
Uranium Programs	17			16	15
TOTAL, HEADQUARTERS	153			139	123

II. Funding Table - continued Detailed Breakout	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Summary - Strategic Alignment Staffing Targets - continued					
Field End of Year Staffing					
Program Direction	39			33	30
Isotope Production and Dist.	**1**			**1**	**1**
Uranium Programs	35			35	29
TOTAL, FIELD	75			69	60
Albuquerque					
Salary and Benefits	$ 120	$ 130	$ 0	$ 130	$ 130
Travel	0	5	0	5	5
Support Services	0	0	0	0	0
Other Related Expenses	0	0	0	0	0
Total	$ 120	$ 135	$ 0	$ 135	$ 135
End of Year Staffing	1			1	1
Average Salaries and Benefits	$120			$130	$130
Headquarters					
Salary and Benefits	$ 900	$ 835	$ 0	$ 835	$ 860
Travel	75	60	0	60	60
Support Services	389	144	0	144	245
Other Related Expenses	581	406	0	406	280
Total	$ 1,945	$ 1,445	$ 0	$ 1,445	$ 1,445
End of Year Staffing	10			9	9
Average Salaries and Benefits	$90			$93	$96
Budget Authority	2,065	1,580	0	1,580	1,580

III. Performance Summary

FY 1995 Measurable Performance Activities:

Completed second year of NE Headquarters streamlining and downsizing. Overall NE accomplishments (from FY 1993 baseline) which include all Program Direction activities are:

- Reducing Headquarters staff from 258 to 148 (41 percent reduction)
- Reducing the number of senior executive positions from 22 to 7 (68 percent reduction)
- Increasing employee to supervisor ratio from 2:1 to 10:1
- Reducing reliance on support service contracts by 38 percent
- Reducing the number of support service contractors occupying NE office space by 50 percent (from 24 to 12)

FY 1996 Measurable Performance Activities:

The key benchmarks by which NE will measure its FY 1996 streamlining performance are:

- Reducing Headquarters staff to 139
- Reducing senior executive positions to six
- Increasing the employee to supervisor ratio to 11:1
- Reducing travel by 20 percent from FY 1995 level
- Reducing reliance on support service contracts by 15 percent from FY 1995 level

FY 1997 Measurable Performance Activities:

The key benchmarks by which NE will measure its FY 1997 streamlining performance are:

- Reducing Headquarters staff to 123 (a 52 percent reduction since 1993)
- Increasing the employee to supervisor ratio to 12:1

FY 1997 Measurable Performance Activities: - continued

- Reducing senior executive positions to five
- Reducing reliance on support service contractors by 15 percent from FY 1995 level

IV. Explanation of Funding Changes FY 1996 to FY 1997:

No change in funding.

V. Explanation of Average FTE Costs:

The average employee costs are based on detailed calculations of employee salary costs (adjusted for escalation), benefits (life insurance, Medicare, and retirement), and other personnel compensation (such as awards and overtime). The average costs per employee does not include other expenses such as the working capital fund and travel, since this has been centrally budgeted for all NE Headquarters employees.

The overall average NE Headquarters employee salary and benefits cost is $95,000. The average NE Headquarters Isotope employee salary and benefits cost is $96,000. The variance is negligible.

The overall average NE Field employee salary and benefits cost is $91,000. There is only one NE Isotope Field employee and the salary and benefits cost is $130,000. The variance is attributable to only one Isotope Field employee which precludes any lower average cost attributable to lower paid employees.

The average "fully loaded" employee costs are to include an allocation of expenses for rent, utilities, telecommunications, materials and supplies, etc., as well as salaries and benefits. These costs, for Headquarters and Field employees, are shown below:

Cost Category	Average per Headquarters Employee	Average per Field Employee
Salary and Benefits	95	91
Travel	7	5
Rent and Utilities	6	-
Contract Audits	3	-
ADP Support	3	-
Other Expenses	6	17
Total Average	120	113

- Does not include:
  -support services costs which are predominantly funded by program operating expenses;
  -travel by other federal agency employees (e.g., State Department travel related to transparency measures program activities);
  -other expenses not related to federal staffing (e.g., funding for New Brunswick Laboratory employees related to transparency measures monitoring activities in Russia); and
  -retirement "buyout" payments and related expenses.

ISOTOPE SUPPORT

PROGRAM DIRECTION OBJECT CLASS SUMMARY
(Dollars in Thousands)

Personnel Compensation:	FY 1995 Comp.	FY 1995 Non-comp.	FY 1996 Comp.	FY 1996 Non-comp.	FY 1997 Request
11.1 Full-time permanent	$ 1,312	$ 1,312	$ 775	$ 775	$ 795
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	12	12	15	15	15
11.9 Total Personnel Compensation	1,324	1,324	790	790	810
12.1 Civilian personnel benefits	244	244	175	175	180
21.0 Travel and transportation of persons	75	75	65	65	65
25.2 Other services	422	422	550	550	525
99.9 TOTAL	$ 2,065	$ 2,065	$ 1,580	$ 1,580	$ 1,580

Civilian Waste Research and Development

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

I. Mission Supporting Goals and Objectives

The primary goals of this activity are: to complete cooperative demonstrations with industry and the electric utilities to develop transportable storage system and dry transfer system that the Nuclear Regulatory Commission (NRC) may license for use at utility or interim storage facilities.

Generic research and development (R&D) is used to support studies to describe the behavior of spent fuel in long-term dry storage and establish a data base which will assist in the licensing of dry storage technologies. Headquarters staff is responsible for the assessment of technical progress, project planning, milestone progress, guidance, overview and integration of all contractor activities.

Spent fuel storage provides for full monitoring and periodic assessments of casks at the Idaho National Engineering Laboratory (INEL) loaded with intact and consolidated fuel; generic research and development of information and reports on technical subjects important to the design, licensing, operation and maintenance of spent fuel storage facilities; international information exchanges; and support of a transportable storage system and dry fuel transfer system.

The FY 1996 Energy Supply, Research and Development Appropriation provides no funding for this program. The Office of Civilian Radioactive Waste Management is using existing funds to terminate research projects in a orderly manner and attempt to transfer custody of the spent nuclear fuel to other programs within the Department of Energy.

II. Funding Schedule

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Spent fuel Storage Development					
Cooperative Agreements					
Dry Cask Storage	279				
Generic Research	273				
Cooperation with Non-Nuclear States	20				
Program Direction	110				
Total, Civilian Radioactive Waste Research and Development.	682	0	0	0	0

III. Performance Summary

FY 1995 Accomplishments

Completed Draft Design of DOE /Electric Power Research Power Institute (EPRI) dry transfer system.
Initiated Fabrication of DOE / Sacramento Municipal Utility District (SMUD) transportable storage system.

FY 1996 Planned Accomplishments

No new initiatives, existing projects will be closed out.

FY 1997 Objectives

No new initiatives, existing projects will be closed out.

FY 1997 Planned Accomplishments

None.

Explanation of Funding Changes FY 1996 to FY 1997

Program terminated by the FY 1996 Energy Supply, Research and Development Appropriation.

Major Issues

Availability to research information from monitoring spent fuel in dry storage at the Idaho National Engineering Laboratory will be lost when this program is terminated. This fuel has been in casked dry storage longer than any other fuel in the United States, therefore this termination will result in a unique lost scientific opportunity.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands)

CIVILIAN RADIOACTIVE WASTE RESEARCH AND DEVELOPMENT
PROGRAM FUNDING PROFILE

PROGRAM ELEMENT	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation a/	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
CIVILIAN RADIOACTIVE WASTE RESEARCH AND DEVELOPMENT	$ 682	$ 0	$ 0	$ 0	$ 0
Staffing (FTE's)	1	0	0	0	0

a/ The FY 1996 Energy Supply, Research and Development Appropriation provides no funding for this program.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
(Obligations in thousands of dollars)

OBJECT CLASS
CIVILIAN RADIOACTIVE WASTE R&D

Direct Obligation:	FY 1995 Non Comparable	FY 1995 Comparable	FY 1996 Non Comparable	FY 1996 Comparable	FY 1997
Personnel Compensation:					
11.1 Full-time permanent.....	75	75			
11.5 Other personnel compensation....	5	5			
11.9 Total Personnel Compensation.....	80	80	0	0	0
12.1 Civilian personnel benefits.....	10	10			
21.1 Travel and trans. of persons....	1	1			
25.0 Other services.....	527	591	393 a/	0	0
99.9 Total Obligations.....	618	682	393 a/	0	0

a/ Use of prior years unobligated balances.

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Environment, Safety and Health

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ENVIRONMENT, SAFETY AND HEALTH

VOLUME 2

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Environment, Safety, and Health					
Office of environment, safety and health (non-def)	83,180	84,290	73,160	-11,130	-13.2%
Program direction	45,113	39,315	39,046	-269	-0.7%
Subtotal, Environment, Safety, and Health	128,293	123,605	112,206	-11,399	-9.2%
Use of prior year balances	——	-4,396	——	4,396	100.0%
Total, Environment, Safety, and Health	**128,293**	**119,209**	**112,206**	**-7,003**	**-5.9%**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

ENVIRONMENT, SAFETY AND HEALTH

EXECUTIVE BUDGET SUMMARY

Mission:
The Office of Environment, Safety and Health (EH) works with line program managers to develop tools needed to manage safety at our facilities more effectively and at less cost to taxpayers. The Office has demonstrated that the Department can do its work better, more safely, and at less cost by integrating safety into the planning and execution of work. Safety is no longer viewed as an "add-on" that produces only paper and needless cost, but as an asset that allows efficient targeting of the most urgent risks, most efficient use of limited resources, and effective accomplishment of work.

The EH independent oversight program has been extremely useful in helping the Department effectively target risk. Comprehensive assessments provide DOE management with validated, professional appraisals of the site's performance, greatly aiding its ability to target resources to areas of greatest risk to workers, the public, and the environment. The foundation of the new approach is an analytic framework or "template" that clearly articulates the principles and operational elements of sound ES&H management programs. The template allows assessments to be based on clearly defined principles and performance expectations and not just on inspector's view.

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The Office of Environment, Safety and Health (EH) is a corporate resource that fosters Departmental excellence through innovative leadership in the protection of workers, the public, and the environment. This commitment to excellence will be demonstrated by striving for continuous improvement in developing meaningful programs and policies; conducting independent oversight of environment, safety, and health performance; and providing technical resources, assistance, and information sharing domestically and abroad. Open communication, participation, and performance feedback on EH activities from relevant parties are integral to EH's success. EH seeks to ensure that Department of Energy (DOE) activities are conducted in a way that prevents accidents or injuries to workers and the public, and prevents harm to the environment. As the equivalent of a "corporate resource" for DOE, EH is the major source of expertise in disciplines such as environmental protection, nuclear safety engineering, public health, industrial hygiene, radiation protection, construction safety, risk management, epidemiology, and occupational medicine. Our goal is to leverage our resources and skills in a way that provides DOE's line management programs with the tools it needs to protect workers, the public, and the environment at DOE sites.

This goal takes on increasing urgency and complexity as DOE faces unprecedented hazards at its facilities, especially in the nuclear weapons complex. As a result of more than 50 years of nuclear weapons production and the rather sudden end of the Cold War, DOE harbors the largest

inventories of hazardous materials in the world outside of the former Soviet Union. Much of this material -- plutonium, spent fuel, and hazardous chemicals -- is stored in aging and deteriorating facilities, and in conditions and buildings that are in themselves hazards to workers. We lack reliable data for many of these facilities on the most basic issues, such as electrical and ventilation systems. DOE is also transitioning to new missions of weapons dismantlement, environmental cleanup, and decontamination and decommissioning. These newer tasks challenge DOE workers with highly dynamic and changing workplaces, where hazards are numerous and varied and exposures are unknown and unpredictable.

The overall major goals and objectives include the following.

Goal 1: Establish a standardized corporate independent oversight process that provides a credible process for appraising the effectiveness of environment, safety, health, and safeguards and security programs throughout DOE. To accomplish the goal of corporate independent oversight, the following objectives have been established: (a) identify, prioritize, and target Departmental needs for independent oversight; (b) incorporate the DOE's safety management guiding principles into all oversight activities; (c) institutionalize a coordinated and consistent independent oversight for the DOE; and (d) disseminate lessons learned to reinforce good practices of work planning, hazard analysis, and hazard control.

Goal 2: Establish a quality (timely, efficient, and effective) assistance program. To accomplish this technical assistance goal, the following objectives have been established: (a) establish management structure and supporting systems to achieve an effective technical assistance program; (b) identify potential environment, safety, and health assistance needs; (c) establish a priority-setting system for processing requests for assistance and delivering quality environment, safety, and health assistance; (d) continuously improve technical assistance through feedback; and (e) develop an outreach plan and program for technical assistance.

Goal 3: Develop an effective system of policies, rules, orders, and standards. To accomplish this policy/standards goal, the following objectives have been developed: (a) identify policy, requirements, guidance, and standards in existing environment, safety, and health orders; (b) develop a framework for order restructuring; (c) integrate orders' component parts into new environment, safety, and health orders system; and (d) implement a process to assess and improve the effectiveness of the new environment, safety, and health order system in protecting the environment and enhancing public and worker safety and health.

Goal 4: Establish a National Environmental Policy Act (NEPA) process that encourages managers to use NEPA, builds public trust, and minimizes cost and preparation/review time. To accomplish this NEPA goal, EH has established the following objectives: (a) implement NEPA contract reforms that provide incentives for quality and timely performance; (b) implement changes to improve the NEPA process; (c) implement additional reforms for high priority projects to deal with situations where schedule is of paramount importance; (d) implement enhancements for public involvement to encourage and facilitate public participation throughout the NEPA process; and (e) form a quality team to analyze the environmental impact statement process and recommend improvements.

Goal 5: Improve environment, safety, and health performance and management accountability by leading DOE-wide implementation of environment, safety, and health business and budget planning processes. To accomplish this goal, EH has established the following objectives: (a) develop and support implementation of a DOE-wide environment, safety, and health budget and planning process that defines scope, identifies costs, prioritizes activities based on relative risk, and allocates resources against established commitments in a visible manner for implementation of environment, safety, and health program activities; (b) improve environment, safety, and health performance through the application of total quality approaches to environment, safety, and health management processes; and (c) integrate environment, safety, and health in all Departmental business functions.

Goal 6: Establish an integrated information management program. To accomplish this goal, EH's objectives are: (a) formalize the information management function; (b) provide quality environment, safety, and health information to the public, EH, DOE, and other stakeholders; (c) provide users effective communication, sharing, and processing of quality information; and (d) continuously improve management of information.

Goal 7: Carry out EH's mission in an open, trustworthy, and responsive manner. To accomplish this goal, EH's objectives are: (a) establish and implement programs that strengthen the public's trust, confidence, and respect in and for EH; (b) establish and implement programs that strengthen the credibility and trust of EH by Departmental and contractor employees; and (c) support the Department's efforts in the reduction of national security information and to minimize future classification.

EH is modeled after private corporations with the best environment, safety, and health records. Based on the premise that systems that effectively manage environment, safety, and health are also the key to improving the cost-effectiveness and efficiency of work, EH develops management systems for the line programs that proactively identify and efficiently cope with hazards before they cause accidents, disease, or environmental contamination.

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The legal requirements that affect the activities of the EH organization include all environmental, safety, and health Federal regulations, as well as legislation such as the National Defense Authorization Act for Fiscal Year 1995.

Strategy:
EH's intent is to assure that quality, objectivity, responsiveness and innovation are hallmarks of all EH activities. In addressing EH's future posture and direction, planning began by identifying and capitalizing on current strengths and proceeding toward accomplishment of well-defined goals and objectives. EH focuses on developing management-level analytical products, reducing redundancies in DOE, and enhancing staff development. Since EH is the Departmental advocate for excellence in programs to protect the environment, as well as the health and safety of workers at DOE facilities and the public, EH serves its principal customers in the following major areas: (a) the development and establishment of environmental, safety, and health policies and rules for operation of Departmental facilities that are effective, and efficient; (b) conduct of independent oversight activities that provide a comprehensive status of environment, safety, health, and safeguards and security performance at

DOE facilities; and (c) technical assistance to the Department's programs to foster the identification and resolution of environment, safety, and health issues.

Major Changes:
The Office of Environment, Safety and Health (EH) works with line program managers to develop tools needed to manage safety at our facilities more effectively and at less cost to taxpayers. The Office has demonstrated that the Department can do its work, better, more safely, and at less cost by integrating safety into planning and execution of work. Safety is no longer viewed as an "add-on" that produces only paper and needless cost, but as an asset that allows efficient targeting of the most urgent risks, most efficient use of limited resources, and effective accomplishment of work. At Fernald, for example, the Department avoided nearly $2 million in costs by recognizing and avoiding unnecessary work. Safety personnel worked side by side with engineers, planners, and other workers to "build in" safety and health concerns into the actual planning of work. In much the same way, $500,000 was saved at a facility at the Hanford plant. This approach to work planning is to become standard practice throughout the DOE complex and will continue to save taxpayers millions of dollars year after year while also making work safer.

Vulnerability assessments led by the Office of EH identified conditions or weaknesses in the way we handle spent fuel, plutonium and hazardous chemicals that could affect the public or worker health or the environment. These analyses have allowed the Department to better set priorities and direct resources toward the most urgent risks. Overall, 281 of 503 corrective actions identified in the spent fuel report have been completed and 64 of 152 plutonium milestones have been met. For example, at the Hanford K-basins, actions were developed and will soon be implemented to remediate what were identified as the highest spent fuel risks in the complex. At Savannah River, the FB-Line and F-Canyons are operating and stabilizing plutonium solutions.

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A critical challenge today in DOE is doing new types of work and doing it at facilities that are no longer in sync with the Department's rules and orders. These "top down" orders were developed to meet the needs of a stable weapons production system. Decontamination, decommissioning, and environmental cleanup, on the other hand, involved hundreds of individual tasks in aging facilities with hazards that are unknown and difficult to predict. Many old, poorly-maintained buildings don't meet today's building codes and safety standards. The "Necessary and Sufficient Process" provides a graded approach to safety standards that allow us to tailor the standards to the work and the facilities. In a pilot application of this process at a major Hanford facility, we were able to greatly reduce worker exposure while cutting costs by 50 percent. The Department plans to use this process to proceed with safe and timely stabilization of facilities at Rocky Flats and other locations throughout the DOE complex.

The EH independent oversight program has been extremely useful in helping the Department effectively target risk. Comprehensive assessments providing DOE management with validated, professional appraisal of the site's performance, greatly aiding its ability to target resources to areas of greatest risk to workers, the public, and the environment. The foundation of the new approach is an analytic framework or "template" that clearly articulates the principles and operational elements of sound ES&H management programs. The template allows assessments to be based on clearly defined principles and performance expectations and not just one inspector's view. In December 1994, EH was reorganized along core

functional areas. The independent oversight of environment, safety, health, and safeguards and security activities were placed in one organization. Technical Assistance and Policy functions were also realigned. Health Studies encompass all the International Programs including Marshall Islands, as well as Occupational Medicine, and Epidemiologic Studies. This realignment assists EH in streamlining and providing the Department with a smaller, more technically adroit and more flexible EH organization.

In FY 1997, the budget structure of EH is changed to reflect the major business lines identified in its strategic plan. These business lines are Technical Assistance, Oversight, Policy, Health Studies, Radiation Effects Research Foundation program, NEPA, and Management and Administration, and they are divided into two major accounts (Non-Defense and Defense). Each account also has a Program Direction Decision Unit. Separation of these functions provides for avoidance of conflict of interest, as delineated in the Secretary's response to Section 3163 of the Fiscal Year 1995 National Defense Authorization Act. For example, the staff conducting oversight activities will be independent of both line management and technical assistance efforts and will be free of conflicts of interest that would compromise independence. Also, oversight funded in Other Defense Activities is not responsible for policy. The non-defense activities encompass technical assistance and policy operations, therefore providing for clear separation of functions along appropriation accounts as well as business lines.

Finally, savings in the EH program have been realized from reduced use of support services, improved productivity from Federal workforce, and reorganization along business lines that eliminated redundancies and refocused programs on prevention and providing practical, timely information to managers. Support service contracts have been reduced and consolidated from FY 1995 to FY 1997. FTEs were at 452 in FY 1995 and will be reduced to 422 in FY 1997. Travel expenditures will be reduced by approximately 20 percent from FY 1995 to FY 1997.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY and HEALTH
ORGANIZATION FUNDING PROFILE[1]

Sub-Program	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
EH Non-Defense			
Operating Expenses			
Technical Assistance	$34,419	$34,180	$29,220
Policy	2,560	2,600	2,340
NEPA	3,500	3,410	3,500
RERF	18,000	20,000	15,000
Management and Administration	24,701	24,100	23,100
Program Direction	45,113	39,315	39,046
Subtotal	128,293	123,605	112,206
Adjustment	0	-4,396	0
Subtotal Non-Defense	$128,293	$119,209	$112,206
EH Defense			
Operating Expenses			
Oversight	$18,300	$16,245	$14,526
Health Studies	41,767	41,645	38,568
Program Direction	10,810	11,766	10,706
Subtotal	70,877	69,656	63,800
Adjustment	- 6,600	0	0
Subtotal Defense	$64,277	$69,656	$63,800
TOTAL	**$192,570**	**$188,865**	**$176,006**

[1] Under the new budget structure, net shift of $13,549,000 in FY 1995 and $9,332,000 in FY 1996 from Energy Supply, Research and Development. The FY 1995 and FY 1996 columns are displayed in the new structure for comparison purposes only. the FY 1995 and FY 1996 programs are being implemented as appropriated.

Authorizations:
P.L. 83-703, "Atomic Energy Act of 1954"
P.L. 100-408, "Price Anderson Amendments Act of 1988"
P.L. 95-91, "Department of Energy Organization Act" (1977)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET
ENVIRONMENT, SAFETY and HEALTH
ORGANIZATION FUNDING PROFILE

Sub-Program	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
FTEs			
Non-Defense	347	316	316
Defense	105	117	106
TOTAL	452	433	422

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENT, SAFETY, AND HEALTH
ORGANIZATION FUNDING BY SITE SUMMARY
(Dollars in thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Sandia National Laboratories	$312	$282	$263
Los Alamos National Laboratory	1,118	1,010	942
Brookhaven National Laboratory	4,009	3,622	3,378
Argonne National Laboratory	4,930	4,454	4,154
Idaho National Engineering Laboratory	6,681	6,036	5,629
Oak Ridge Institute for Science & Ed.	7,668	6,928	6,461
Oak Ridge National Laboratory	16,575	14,976	13,966
Pacific Northwest Laboratories	19,693	17,793	16,593
Lawrence Berkeley Laboratory	1,510	1,364	1,272
Lawrence Livermore Laboratory	9,422	8,513	7,939
Savannah River Technology Laboratory	191	173	161
Westinghouse Hanford	135	125	135
HQs	126,926	127,985	115,113
Adjustment	-6,600	- 4,396	0
TOTAL	$192,570	$188,865	$176,006

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF ENVIRONMENT, SAFETY AND HEALTH (EH)
(dollars in thousands)

FY 1995 COMPARABILITY MATRIX

CURRENT STRUCTURE

	Non-Defense					Non-Defense	Non-Defense	Defense		Defense	Defense	
Appropriation/Program	**Technical Assist.**	**Policy**	**RERF**	**NEPA**	**Mgmt. &Admin.**	**Program Direction**	**TOTAL**	**Oversight**	**Health Studies**	**Program Direction**	**TOTAL**	**Total EH**
Energy, Supply, Research & Develop												
Environment, Safety & Health Activities	6,500	225		3,500	2,965	1,000	14,190					14,190
Worker Health & Safety	17,611	900			4,500	2,000	25,011					25,011
Health Studies			18,000		3,991	3,037	25,028		13,349		13,349	38,377
Oversight	6,900				1,678	2,000	10,578		150	50	200	10,778
Planning & Administration						31,860	31,860					31,860
Nuclear Safety Policy	3,408	1,435			11,567	770	17,180					17,180
Working Capital Fund Adjustment						4,446	4,446					4,446
Subtotal Energy Supply	34,419	2,560	18,000	3,500	24,701	45,113	128,293		13,499	50	13,549	141,842
Defense Environment Restoration												
Dose Reconstruction									9,950		9,950	9,950
Other Defense Activities												
Security Evaluations								11,523		3,937	15,460	15,460
Nuclear Safety								6,226	9,100	6,353	21,679	21,679
Subtotal Other Defense								17,749	9,100	10,290	37,139	37,139
Weapons Activities												
Dose Reconstruction									2,888		2,888	2,888
Marshall Islands									6,330	470	6,800	6,800
Representative to the DNFSB								551			551	551
Subtotal Weapons Activities								551	9,218	470	10,239	10,239
Subtotal EH	**34,419**	**2,560**	**18,000**	**3,500**	**24,701**	**45,113**	**128,293**	**18,300**	**41,767**	**10,810**	**70,877**	**199,170**
Prior Year Balances												**-6,600**
Total EH	**34,419**	**2,560**	**18,000**	**3,500**	**24,701**	**45,113**	**128,293**	**18,300**	**41,767**	**10,810**	**70,877**	**192,570**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF ENVIRONMENT, SAFETY AND HEALTH (EH)
(dollars in thousands)

FY 1996 COMPARABILITY MATRIX

CURRENT STRUCTURE

	Non-Defense					Non-Defense	Non-Defense	Defense			Defense	Defense	
Appropriation/Program	**Technical Assist.**	**Policy**	**RERF**	**NEPA**	**Mgmt. & Admin.**	**Program Direction**	**TOTAL**	**Oversight**	**Health Studies**	**Program Direction**	**TOTAL**	**Total EH**
Energy, Supply, Research & Develop												
Environment, Safety & Health Activities	3,285	220		3,410			6,915					6,915
Worker Health & Safety	18,116	487			10,047		28,650					28,650
Health Studies			20,000				20,000		9,332		9,332	29,332
Oversight	7,516				4,850		12,366					12,366
Planning & Administration					2,859	39,315	42,174					42,174
Nuclear Safety Policy	5,263	1,893			6,344		13,500					13,500
Subtotal Energy Supply	34,180	2,600	20,000	3,410	24,100	39,315	123,605		9,332		9,332	132,937
Defense Environment Restoration												
Dose Reconstruction									17,250		17,250	17,250
Other Defense Activities												
Security Evaluations								10,688		4,019	14,707	14,707
Nuclear Safety								4,857	5,375	7,447	17,679	17,679
Subtotal Other Defense								15,545	5,375	11,466	32,386	32,386
Weapons Activities												
Dose Reconstruction									2,888		2,888	2,888
Marshall Islands									6,800		6,800	6,800
Representative to the DNFSB								700		300	1,000	1,000
Subtotal Weapons Activities								700	9,688	300	10,688	10,688
Subtotal EH	34,180	2,600	20,000	3,410	24,100	39,315	123,605	16,245	41,645	11,766	69,656	193,261
Prior Year Balances												-4,396
Total EH	**34,180**	**2,600**	**20,000**	**3,410**	**24,100**	**39,315**	**123,605**	**16,245**	**41,645**	**11,766**	**69,656**	**188,865**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF ENVIRONMENT, SAFETY AND HEALTH (EH)
(dollars in thousands)

FY 1997 COMPARABILITY MATRIX

CURRENT STRUCTURE

	Non Defense					Non-Defense	Non-Defense	Defense		Defense	Defense	
Appropriation/Program	**Technical Assist.**	**Policy**	**RERF**	**NEPA**	**Mgmt. & Admin.**	**Program Direction**	**TOTAL**	**Oversight**	**Health Studies**	**Program Direction**	**TOTAL**	**Total EH**
Energy, Supply, Research & Develop												
Environment, Safety & Health Activities	29,220	2,340	15,000	3,500	23,100	39,046	112,206					112,206
Worker Health & Safety												
Health Studies												
Oversight												
Planning & Administration												
Nuclear Safety Policy												
Subtotal Energy Supply	29,220	2,340	15,000	3,500	23,100	39,046	112,206					112,206
Defense Environment Restoration												
Dose Reconstruction												
Other Defense Activities												
Security Evaluations												
Nuclear Safety												
Environment, Safety & Health Activities								14,526	38,568	10,706	63,800	63,800
Subtotal Other Defense								14,526	38,568	10,706	63,800	63,800
Weapons Activities												
Dose Reconstruction												
Marshall Islands												
Representative to the DNFSB												
Subtotal Weapons Activities												
Total EH	**29,220**	**2,340**	**15,000**	**3,500**	**23,100**	**39,046**	**112,206**	**14,526**	**38,568**	**10,706**	**63,800**	**176,006**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands)
ENVIRONMENT, SAFETY AND HEALTH
EH NON-DEFENSE
PROGRAM MISSION

The Office of Environment, Safety and Health (EH) is a corporate resource that provides leadership and Departmental management excellence to protect the workers, the public, and the environment. This commitment to excellence is demonstrated by striving for continuous improvement to develop meaningful programs and policies and providing technical assistance, resources, and information sharing. Open communication, participation, and performance feedback on EH activities from affected parties is integral to EH's success. The hallmark and highest priority of all EH activities is daily excellence in the protection of the workers, the public, and the environment. Program Direction is a separate Decision Unit in the Energy Supply, Research and Development Appropriation. As part of the reorganization of the Office of Environment, Safety and Health, operations were streamlined along business function activities. Accordingly, in order to streamline budget activities, the Energy Supply, Research and Development (which prior activities were Environment, Safety and Health activities and Nuclear Safety Policy) now encompass these business lines: Technical Assistance, Policy, Health Studies, National Environmental Policy Act (NEPA), Radiation Effects Research Foundation (RERF), and Management and Administration. The activities performed by these business lines are as follows:

TECHNICAL ASSISTANCE: These activities comprise a range of corporate-based functions in support of key Departmental missions to address emerging program vulnerabilities, significant or new nuclear and industrial hazards, and improved methods for managing or implementing programs. Also, support is provided to: crosscutting Department of Energy (DOE)-wide functions, which ensure the quality of environment, safety, and health monitoring; safety and health protection of Federal employees; programs for strengthening safety performance; and communications of environment, safety, and health program guidance and practices. Overall activities focus on safety and health of workers and the public, safety of the environment and Federal facilities, and prevention and/or mitigation of effects of unforeseen occurrences.

POLICY: These activities include developing, interpreting, promulgating, and maintaining coherent and comprehensive requirements, guidance, and technical standards for protecting workers, the public, and the environment. These activities also consist of liaison and information exchange with other agencies, committees, governmental bodies, and industry and public interest groups on nuclear and industrial safety and environmental policies and standards.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA): This is a process that enhances managers' decision-making, builds public trust, and minimizes the cost and time for document preparation and review while maintaining quality.

RADIATION EFFECTS RESEARCH FOUNDATION (RERF): This program conducts research and studies for peaceful purposes on the medical effects of radiation on man or diseases that may be affected by radiation, with a view to contributing to the maintenance of the health and welfare of atomic bomb survivors and to the enhancement of the health of all mankind.

MANAGEMENT AND ADMINISTRATION: These activities provide for the centralized management and direction of EH for the Department wide business and budget planning process, budgeting, financial control, procurement, information management, and technical training and professional development.

The **GOALS** of EH **Non-Defense** programs are:

- To conduct technical assistance programs and activities that consistently provide quality, timely, efficient, and effective environment, safety, and health assistance that meets priority needs and receives high customer satisfaction.
- To have an effective system of policies, requirements, guidance, and technical standards that significantly increase the protection of the environment and enhance public and worker safety and health.
- To effectively implement the NEPA process and foster public trust.
- To establish and maintain a Department-wide business and budget planning process that identifies environment, safety, and health vulnerabilities and enables effective line program allocation of environment, safety, and health resources.
- To establish and maintain an integrated information management program that will enhance environment, safety, and health performances.
- To improve the performance and effectiveness of the Department's workforce and contractor employees in matters related to environment, safety, and health.

The **OBJECTIVES** related to these goals are:

- Identify environment, safety, and health needs and assist management in action plan development; and develop environment, safety, and health program guidance for nuclear and industrial safety and environmental and health protection.
- Provide specialized technical assistance to line management to address facility and personnel safety issues; identify *necessary and sufficient* guidelines for the work being performed; and provide exchange of operating experience and lessons learned.
- Support programs to improve exposure assessment and medical monitoring of the DOE workforce.
- Identify policy, requirements, guidance, and standards in existing environment, safety, and health directives, and integrate directives' component parts into a new environment, safety, and health directive system, and into a standard-based safety management system.
- Review Safety Analysis Reports (SARs) and Environmental Impact Statements, risk analysis, and operational analyses.
- Implement environment, safety, and health contract reforms that provide incentives for quality and timely performance, and encourage innovative contracting approaches.
- Ensure the completion of timely and adequate NEPA reviews.
- Ensure the consistency and quality of NEPA documents and increase the efficiency of NEPA personnel.
- Streamline the environmental review process.
- Support the implementation of a DOE-wide environment, safety, and health budget and planning process.
- Improve the information management function by enhancing the ability to provide quality environment, safety, and health information to the public, EH, DOE, and other stakeholders.
- Transition to standards-based safety: radiological facilities separated from nuclear facilities and graded approach applied to enhance facility safety; moving from prescriptive compliance-based approach to performance-oriented approach.
- Ensure that EH personnel receive necessary and comprehensive training to perform their assigned duties.

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- Investigate the effects of radiation exposure on the survivors of the bombings of Hiroshima and Nagasaki.

PERFORMANCE MEASURES:

The performance measures related to environment, safety, and health activities are primarily qualitative rather then quantitative. Some performance measures are:

- Reduced worker health and safety impacts; no fatalities and fewer serious injuries; fewer instances of significant worker exposures; and lower overall total exposures to radiological and toxicological materials.
- Fewer radiological and toxicological contamination events, fewer abnormal operating events, and fewer procedural violations.
- Environment, Safety and Health performance trends will improve (e.g., decreased lost workdays due to occupational illness, injury; decreased number of personnel contaminated with radionuclides).
- The number of serious accidents where policy is a root cause of the problem will decrease.
- Former workers are satisfied that issues surrounding their potential for occupationally-related disease are being addressed.
- Timely resolution of identified deficiencies and concerns associated with the operations of DOE occupational medical programs.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

Significant accomplishments and program shifts are defined within the respective business line descriptions that follow.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
ENVIRONMENT, SAFETY AND HEALTH
PROGRAM FUNDING PROFILE, EH NON-DEFENSE

	FY 1995 Comparable Appropriation	FY 1996[1] Original Appropriation	FY 1996[1] Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Sub-Programs					
Technical Assistance	$ 34,419	$ 0	$34,180	$34,180	$29,220
Policy	2,560	0	2,600	2,600	2,340
NEPA	3,500	0	3,410	3,410	3,500
RERF	18,000	0	20,000	20,000	15,000
Management and Administration	24,701	0	24,100	24,100	23,100
Total Non-Defense Programs	**$83,180**	**$93,622**	**$84,290**	**$84,290**	**$73,160**

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[1]Under the new budget structure net shift of $ 13,549,000 in FY 1995 and $ 9,332,000 in FY 1996 from Energy Supply, Research and Development. The FY 1995 and FY 1996 columns are displayed in the new structure for comparisons purposes only. The changes are highlighted in the FY 1995 and FY 1996 Comparability matrixes included in the Environment, Safety Health Executive Summary Budget. The original Energy Supply, Research and Development appropriation in FY 1996 was $124,037,000. The Program Direction dollars originally appropriated ($34,811,000 in FY 1996) are now part of a separate decision unit. FY 1995 and FY 1996 programs are being implemented as appropriated.

Authorizations:
P.L. 83-703, "Atomic Energy Act of 1954"
P.L. 95-91, "Department of Energy Organization Act" (1977)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
ENVIRONMENT, SAFETY, AND HEALTH
PROGRAM FUNDING BY SITE, EH NON-DEFENSE
(Dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996[2] Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Sandia National Laboratories	$247	0	$217	$217	$198
Los Alamos National Laboratory	1,093	0	985	985	917
Brookhaven National Laboratory	3,968	0	3,522	3,522	3,278
Argonne National Laboratory	3,463	0	3,024	3,024	2,687
Idaho National Engineering Laboratory	6,258	0	5,876	5,876	5,469
Oak Ridge Institute for Science & Ed.	7,608	0	6,898	6,898	6,431
Oak Ridge National Laboratory	16,022	0	14,726	14,726	13,716
Pacific Northwest Laboratories	9,792	0	9,000	9,000	7,466
Lawrence Berkeley Laboratory	1,477	0	1,364	1,364	1,272
Lawrence Livermore Laboratory	8,094	0	7,218	7,218	6,611
Savannah River Technology Laboratory	191	0	173	173	161
HQs	24,967	0	31,287	31,287	24,954
Subtotal	83,180	0	84,290	84,290	73,160
Adjustment	0	0	0	0	0
TOTAL	$83,180	$93,622	$84,290	$84,290	$73,160

[2]Under the new budget structure, net shift of $ 13,549,000 in FY 1995 and $ 9,332,000 in FY 1996 from Energy Supply, Research and Development. The FY 1995 and FY 1996 columns are displayed in the new structure for comparisons purposes only. The changes are highlighted in the FY 1995 and FY 1996 Comparability matrixes included in the Environment, Safety Health Executive Summary Budget. The FY 1995 and FY 1996 programs are being implemented as appropriated.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
ENVIRONMENT, SAFETY AND HEALTH
PROGRAM OBJECT CLASS SUMMARY, EH NON-DEFENSE
(Dollars in Thousands)

		FY 1995 Comparable	FY 1995[3] Non-comparable	FY 1996 Comparable	FY 1996 Non-comparable	FY 1997 Budget Request
25.1	Advisory and assistance services	$ 7,048	$ 0	$ 4,814	$0	$ 3,475
25.2	Other services	30,127	0	38,244	0	37,405
25.5	Research and development contracts	45,169	0	42,591	0	32,280
	Subtotal	82,344	0	85,649	0	73,160
	Use of Prior Year Balances	0	0	0	0	0
	Unobligated balance available, start of year	(3,052)	0	(1,359)	0	0
	Unobligated balance available, end of year	1,359	0	0	0	0
99.9	TOTAL	$80,591	$96,729	$84,290	$93,622	$73,160

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[3]EH Non-Defense is a new decision unit as a result of the EH Budget Structure Changes. See the Environment, Safety and Health Executive Budget Summary comparability matrixes.

Program Performance Summary:

Mission Supporting Goals and Objectives

Technical assistance within EH consists of the following:

Line Management Support focuses on safety and health programs that are often unique to DOE and its mix of radioactive, hazardous, and toxic materials through the demonstration of effective business practices, and direct program assistance and guidance to DOE field offices and contractors. These include activities relating to design, construction, operation, and decontamination and decommissioning of nuclear weapons production and research-related facilities; identification and medical monitoring of high-risk exposure groups of workers; construction safety; work planning techniques to identify, evaluate, and eliminate hazards; and identification of technologies and innovative adaptations of existing practices. Included in this area is support to line management in developing *necessary and sufficient* environment, safety and health requirements and continuation of Departmental Standards Committee initiatives.

Environment, Safety and Health Guidance program supports the development of interpretations and guidance documents for safety and health issues and for the environmental requirements of the Clean Air Act, the Clean Water and Safe Drinking Water Acts, Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Superfund Amendments and Reauthorization Act (SARA), Emergency Planning and Community Right to Know Act (EPCRA), and Radioactive Waste and Hazardous Substance Acts. Also, the program consists of mandatory corporate environmental reporting.

Interagency Representation funds the monitoring of emerging environmental regulations that affect DOE operations and current laws (e.g., the Atomic Energy Act, the Clean Air Act, and the Pollution Prevention Act). This area also includes developing a corporate infrastructure as appropriate for the movement to external regulation.

Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Line Management Support	$29,494	$29,255	$24,095	$-5,160	18%
Environment, Safety & Health Guidance	2,500	2,500	2,500	0	0
Interagency Representation	2,425	2,425	2,625	+ 200	8%
Total Technical Assistance	$34,419	$34,180	$29,220	$-4,960	14%

Performance Summary

FY 1995 Accomplishments

- Developed guidance manuals for Occupational Health and Safety and Worker Safety.
- Issued "The Manual of Functions, Assignments and Responsibilities".
- Developed model program guidance for decontamination and decommissioning of DOE's surplus facilities.
- Issued guides on hazards associated with handling and storage of hazardous and toxic materials.
- Developed construction safety performance measures.
- Coordinated with Environmental Protection Agency (EPA) the development of a Memorandum of Understanding for implementation of 40 Code of Federal Regulations (CFR) 61 and obtained EPA's approval for a monitoring protocol that demonstrates compliance with the regulation.

- Developed guidance for implementation of DOE protection requirements from the hazards of radiation (e.g. 10 CFR 834) and provided assistance for requirements implementation of control and recycle of residual radioactive material and radioactive waste management.
- Consolidated DOE Orders and Rules and streamlined environment, safety and health requirements.
- Issued lessons-learned analyses to the DOE complex in the form of an Operating Experience publication.
- Performed a complex-wide evaluation of environment, safety and health vulnerabilities involved with the storage and handling of plutonium, spent fuel, and hazardous chemicals.
- Provided technical support for the Department's management plan to correct vulnerabilities.
- Provided technical support to Interagency Nuclear Safety Review Panel for its review of the safety analyses of the Cassini Mission to Saturn and the Mars Pathfinder Mission.
- Published "Medical Guidelines for Firefighters," which reconciles the National Fire Protection Association Standards with the Americans with Disabilities Act.
- Integrated contractor occupational medicine program requirements into comprehensive worker protection management for DOE Federal and contractor employees.
- Developed a cost-benefit process enabling line management to evaluate the cost effectiveness of on-site Contractor Occupational Medicine programs versus other alternatives.
- Provided corporate accreditation services for radiation dosimeters and biomedical assay programs of line offices.

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FY 1996 Accomplishments (to date and planned)

- Develop field test guidance for hazardous waste operations and emergency response during cleanup and restoration actions.
- Develop hazards analysis, prevention criteria, and a model program that focuses on worker safety and health with regard to new technologies being developed for environmental restoration and waste management activities.

- Complete development of model program guidance for deactivation and decommissioning.
- Complete development and assistance in implementation of *necessary and sufficient* guidelines.
- Conduct, with line organizations, environment, safety and health vulnerability assessments, and assist in action plan development and implementation.
- Develop enhanced work-planning program guidance focusing on medical surveillance for current workers.
- Recommend applications of new nuclear materials technologies for activities such as plutonium packaging and storage; stabilization, processing, and interim storage techniques for spent nuclear fuels; and tritium handling.
- Implement process for the cost effectiveness of on-site contractor occupational medicine programs versus other alternatives.
- Develop and implement a corporate infrastructure to support movement to external regulation, as necessary.
- Continue to develop DOE positions on emerging environmental regulations. Potential reauthorizations of Resource Conservation and Recovery Act (RCRA), the Clean Air Act, the Clean Water Act, and others will result in significant regulatory activity by the EPA.
- Publish a revision of 10 CFR 1046, "Medical Guidelines for Protective Force Personnel."
- Complete the quality model for programs in occupational medicine settings.
- Provide medical standards to be included in the Personnel Security Assurance Program.
- Conduct Highly Enriched Uranium Study.

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FY 1997 Planned Accomplishments

Line Management Support ($24.1 million)

- Provide assistance to line programs for implementation of guidance for hazardous waste operations and emergency response.

- Field test model program and guidance for hazards evaluation and accident/exposure prevention and mitigation for workers and other personnel associated with new and emerging technologies for environmental restoration and waste management.
- Field test model program guidance for decommissioning and decontamination/construction safety.
- Provide technical assistance on *necessary and sufficient* guidelines to line offices as necessary.
- Conduct, with line organizations, environment, safety, and health vulnerability assessments, and assist in action plan development and implementation.
- Provide aviation safety assistance to line management.
- Manage the DOE dam safety program, the Interagency Nuclear Safety Review Panel, and support DOD reactor evaluations.
- Field test enhanced work planning program guidance focusing on medical surveillance of current workers.
- Provide technical assistance as needed with hazards analysis of large-scale processes for handling and storage of hazardous and toxic chemicals.
- Recommend applications of new technologies for the protection, safety and health of the public, workers, and facilities, and for mitigation or prevention of accidents and damage.
- Provide corporate accreditation services for radiation dosimeters and biomedical assay programs of line offices.
- Implement enhanced work planning by institutionalizing site-specific exposure and medical monitoring programs.
- Provide occupational medicine expert consultation and specific studies to resolve deficiencies and concerns associated with the operation of DOE Occupational Medicine Programs.
- Develop medical surveillance model program guidance for current workers.
- Assist DOE with the Radiation Emergency Assistance Center/Training Site (REAC/TS) that provides DOE with a national and international 24-hour capability for evaluating and managing victims of radiation accidents occurring at DOE facilities or among the public.

- Complete research projects associated with improved treatment of high-dose-radiation accident victims and provide expert consultation and assistance for radiation-accident-patient management.

- Issue DOE-wide interpretation and guidance documents to assist in implementing environmental requirements.

- Conduct the nuclear and facilities safety Operating Experience Analysis Feedback program including managing the occurrence reporting system (ORPS), performance indicators, and issuance of operating experience summaries (OEWS).

- Provide radiological protection management technical assistance.

- Gather data across DOE and provide technical assistance for corporate environmental reporting.

- Administer corporate Voluntary Protection Program (VPP) at DOE field sites, including application reviews and onsite evaluations. Assist the field in implementing process safety management.

- Provide technical assistance for 18,000 Federal DOE employees for OSH protection per Federal statute.

- Provide specialized nuclear safety engineering assistance to participate on multidisciplinary operations office or program office teams, readiness reviews, or consult with line managers to address safety issues for nuclear facilities.

- Conduct DOE certification reviews for packaging and transportation of nuclear materials including WIPP acceptance criteria and onsite assistance (this program is being transferred to Environmental Management (EM)). ($4.3 million)

Environment, Safety and Health Guidance ($2.5 million)

- Provide assistance to line management to develop and implement necessary and sufficient sets of Environment, Safety and Health Requirements and continue Departmental Standards Committee initiatives.

- Issue DOE-wide interpretation and guidance documents (i.e., guides, information briefs, handbooks) and to program and field offices to assist in implementing environmental requirements in the following areas; Clean Air Act, Water Acts (Clean Water, Safe Drinking Water), Waste Cleanup Acts (CERCLA, EPCRA, SARA), Radioactive Waste Acts, Hazardous Substance Acts, Pollution Prevention Act, and Cultural Resource Management.

Interagency Representation ($2.6 million)

- Provide corporate environmental expert assistance to line management on matters such as ground-water protection programs, the phaseout of ozone-depleting substances, the reduction of toxic chemical releases, and RCRA and CERCLA remedial actions. Develop DOE position

on emerging environmental regulatory requirements.

- Develop and implement a corporate infrastructure to support movement to external nuclear regulations. OSHA/NIOSH interface and transition to external regulation.

Explanation of Funding Changes FY 1996 to FY 1997

Technical assistance is reduced in the amount of $4,960,000 by streamlining contractor support in the following areas:

- Field-test guidance ("templates") on application of Hazardous Waste Operations and Emergency Response (HAZWOPER) during DOE hazardous waste activities.
- Radiological protection visits.
- Evaluation of new nuclear material technologies.
- Environment, Safety and Health vulnerability assessments, along with assistance in management action plans.
- Specialized nuclear safety training (evaluation training, criticality safety, and transportation and packaging analysis).
- Efforts to improve the Occurrence Reporting and Processing System and the Performance Indicators program.
- Re-engineering of line management support in Occupational Medicine.
- Accreditation of DOE dosimeter laboratory measurement programs.
- Radiation Emergency Accident Center Training Site Support.
- Environmental Compliance.
- The process for defining, describing, and documenting recordkeeping and recording requirements for worker health and safety completed.

Program Performance Summary:

Mission Supporting Goals and Objectives

Policy program activities provide for operation of the Technical Standards Program in compliance with the Office of Management and Budget (OMB) Circular A-119. The activities also provide DOE with the corporate capability to develop and issue environmental policy, when needed because of events or new requirements pertinent to new legislation, regulations, or Executive Orders, or to protect the public and the environment when a deficiency in programs or operations is identified. Also provided is the capability to develop, promulgate, interpret, and maintain policy, requirements, guidance, and technical standards, including a standards-based safety management program, to implement the nuclear safety program.

Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Policy	$2,560	$2,600	$2,340	-$260	10%

Performance Summary

FY 1995 Accomplishments

- Developed 10 CFR 834, which contains requirements to protect the public and the environment from radioactivity resulting from DOE's activities.
- Updated, streamlined, and consolidated DOE Environmental Orders into a single Environmental Protection Program Order.
- Provided technical and environmental policy advice to activities revising the Department's waste management Orders and issued policy statements for radiation protection and low-level radioactive waste.
- Issued 10 CFR 830, "Nuclear Safety Management," for further public comments.
- Consolidated Facility Safety into a single DOE Order.
- Developed infrastructure for integrated standards-based safety management system.

FY 1996 Accomplishments (to date and planned)

- Issue rule 10 CFR 834.
- Develop implementation plans for 10 CFR 834 and 830.
- Review and update policies in Environmental Protection Program Order as required.
- Provide environmental policy advice on Department's waste management Order and issue policy statements on radiation protection low-level radioactive waste as required.
- Issue New Facility Safety Order.
- Convert DOE technical standards to national/international consensus standards.

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FY 1997 Planned Accomplishments

- Provide environmental policy advice and interpretations on DOE's rule on radiation standards for the protection of the public and the environment. ($0.14 million)

- Develop and issue Nuclear Safety requirements (8 Price-Anderson Amendment Act (PAAA) rules and 2 orders), technical standards, provide interpretation of requirements, and continue management of DOE Technical Standards Program. ($2.2 million)

Explanation of Funding Changes FY 1996 to FY 1997

- Rule and order promulgated and issued in FY 1996 on radiation standards for the protection of the public and the environment (10 CRF 834) and activities on the environmental protection program to be funded at a reduced level for interpretations, advice, and implementation. ($-260,000)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET
ENVIRONMENT, SAFETY AND HEALTH
EH NON-DEFENSE
NATIONAL ENVIRONMENTAL POLICY ACT

Program Performance Summary:

Mission Supporting Goals and Objectives

The NEPA program serves as a corporate resource that supports the timely implementation of the Department's proposed activities by assuring compliance with the National Environmental Policy Act (NEPA) and related environmental review requirements that are necessary before project commitment. To foster sound Departmental planning decision making and public trust through effective process implementation, the NEPA objectives include: (a) ensuring the timely and adequate completion of NEPA reviews through technical assistance, independent review, and approval recommendation of major programmatic environmental impact statements (EISs), site-wide and other EISs, and related NEPA documents; (b) ensuring the consistency and quality of NEPA documents and increasing the efficiency of NEPA personnel by determining and responding to customer needs; (c) issuing guidance on selected technical and policy topics; (d) conducting workshops for Headquarters and field NEPA personnel; and (e) participating in NEPA process improvement teams and other initiatives that foster continuing improvement of the NEPA process. Another objective is to streamline the environmental review process by issuing revised regulations and DOE Orders to reduce costs and regulatory burdens so that the process works better, costs less, and is more useful to decision makers and the public.

Funding Schedule

Program Activity

	FY 1995	FY 1996	FY 1997	$ Change	% Change
NEPA	$3,500	$3,410	$3,500	$90	3%

Performance Summary

FY 1995 Accomplishments

- Awarded the prestigious Annual Federal Environmental Quality Award for excellence in implementing the NEPA compliance program by the Council on Environmental Quality and National Association of Environmental Professionals.

- Implemented process improvements to reduce the cost and time for DOE to comply with NEPA, improve decisions, and build public trust, as directed by the June 1994 Secretarial Policy Statement on NEPA.

- Developed a plan that will reduce the Department's NEPA compliance costs by more than $20 million over 5 years, in accordance with the Department's Strategic Alignment Implementation Plan.

- Issued guidance and conducted workshops to increase the Department's efficiency in preparing NEPA documents.

- Enhanced public participation opportunities by issuing an updated Directory of Potential Stakeholders, issuing guidance on Effective Public Participation under the NEPA, and creating a DOE NEPA Home Page on the INTERNET.

FY 1996 Accomplishments (to date and planned)

- Continue to implement a plan that will reduce NEPA compliance costs by more than $20 million over 5 years, in accordance with the Department's Strategic Alignment Implementation Plan, including Phase II of NEPA contract reform guidance.

- Continue and complete NEPA regulatory development process to reduce costs and regulatory burdens so that the NEPA process works better, costs less, and is more useful to decision makers and the public.

- Conduct workshops and issue guidance to increase the Department's efficiency in preparing NEPA documents (e.g., Volume 2 of the NEPA Compliance Guide, Environmental Justice in NEPA Documents, and Site-wide Environmental Impact Statements).

- Continue to enhance public participation opportunities.

- Provide technical assistance in the preparation of major programmatic environmental impact statements, site-wide and other environmental impact statements, and related documents.

FY 1997 Planned Accomplishments

- Continue to implement a plan that will reduce NEPA compliance costs by more than $20 million over 5 years, in accordance with the Department's Strategic Alignment Implementation Plan, including Phase II of NEPA contract reform guidance. ($0.25 million)
- Conduct workshops and issue guidance to increase the Department's efficiency in preparing NEPA documents. ($0.8 million)
- Continue to enhance public participation opportunities. ($0.1 million)
- Continue to provide technical assistance to ensure completion of major programmatic environmental impact statements and assist in preparing site-wide and other environmental impact statements and related documents. ($2.35 million)

Explanation of Funding Changes FY 1996 to FY 1997

- No significant changes.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET
ENVIRONMENT, SAFETY AND HEALTH
EH NON-DEFENSE
RADIATION EFFECTS RESEARCH FOUNDATION

Program Performance Summary:

The Atomic Bomb Casualty Commission (ABCC) was established in 1946 to investigate the effects of radiation exposure in survivors of the atomic bombings of Hiroshima and Nagasaki. In April 1975, the Radiation Effects Research Foundation (RERF) was established as full successor to the ABCC. Annual funding for the operation of the RERF is provided equally by the Government of Japan through the Ministry of Health and Welfare and the U.S. Government through DOE.

Mission Supporting Goals and Objectives

The objective of the RERF is to conduct research and studies, for peaceful purposes, on the medical effects of radiation on man or diseases that may be affected by radiation, with a view to contributing to the maintenance of the health and welfare of atomic bomb survivors and to the enhancement of the health of all mankind. The EH prioritization criteria is to support ongoing studies of radiation-exposed populations in Japan. The efforts of the RERF research cuts across the Department's organizational entities.

The RERF research programs at the major laboratory in Hiroshima and Nagasaki consist of the following studies of fixed populations: the Life Span Study, the Adult Health Study, the Pathology Program, the Genetic Program (mortality study of survivors, cytogenetics study, biochemical genetics study, growth and development study), and a series of small substudies. The results of this research will be used to validate existing radiation protection standards or become the basis for changing those standards.

Funding Schedule

Program Activity

	FY 1995	FY 1996	FY 1997	$ Change	% Change
RERF	$18,000	$20,000	$15,000	$5,000	25%

Performance Summary

FY 1995 Accomplishments

- Published studies on Japanese atomic bomb survivors, which compare cancer incidence with cancer mortality.

FY 1996 Accomplishments (to date and planned)

- Continue RERF studies (e.g., Life Span Study, the Adult Health Study, the Pathology Program, the genetic Program) for atomic bomb survivors in Hiroshima and Nagasaki.

- A Blue Ribbon Panel, comprised of international scientists, met in FY 1996 to consider the quality, value, and direction of the scientific research conducted at the RERF. The Panel will make recommendations on future priorities for the research program.

FY 1997 Planned Accomplishments

- Continue United States participation in the bi-nationally funded research institution that studies the health effects of the survivors of the atomic bomb. ($15 million)

- Implement 25 percent cost saving measures identified in FY 1996.

Explanation of Funding Changes FY 1996 to FY 1997

- As directed by conference language, performing evaluation of program to identify cost saving measures.

Program Performance Summary:

Mission Supporting Goals and Objectives

Management and Administration provides for the centralized management and direction of the EH planning process, budgeting, financial control, procurement, information management, and technical training and professional development.

The environment, safety, and health planning process enhances the quality and cost-effectiveness of environment, safety, and health program performance of the line organizations. The Environment, Safety and Health Management Plan is the primary DOE-wide process that enables consistent identification of needed Departmental environment, safety, and health activities; risk-based priority setting; effective budget decision making and allocation of environment, safety, and health resources; and improved accountability for environment, safety, and health performance.

The goal of contract reform is to promote improved performance of operating organizations in managing significant environment, safety, and health risks in a cost-effective manner. The environment, safety, and health management planning process also assures that new contracts and renegotiated existing contracts implement environment, safety, and health portions of the Departmental Contract Reform Initiatives. Major program emphasis is focused on procurements and contractor selection processes; definition of environment, safety, and health incentives; and development of environment, safety, and health performance measures.

The Information Management program maximizes the sharing and efficient use of environment, safety, and health data and information. The program seeks to identify and facilitate access to data and information vital to the successful conduct of the programs and activities of EH by maintaining and integrating information systems to support the reporting, tracking, trending, analysis, and dissemination of environment, safety, and health information. The goal of this activity is to establish an integrated, information management program. Successful implementation of the information system will reduce information management redundancy, stream-line program operations, and reduce co· for stakeholders and the Department.

The Technical Training and Professional Development program assures that EH staff are properly trained to perform their duties related to environment, safety, and health matters in accordance with current DOE policy, procedures, and professional standards. This is accomplished through the development and maintenance of an environment, safety, and health training infrastructure; EH staff development programs in the areas of professional, technical, and information management proficiency; fellowships and grants to further industrial hygiene and health physics disciplines; specialized environment, safety, and health training as required for DOE and contractor employees; and development of safety and health technical qualification standards for DOE-wide use.

Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Management Planning	$3,000	$3,000	$3,000	$0	0
Contract Reform	2,000	2,000	2,000	0	0
Information Management	12,701	12,100	12,100	0	0
Technical Training & Professional Development	7,000	7,000	6,000	-1,000	-14%
Total Management & Admin.	$24,701	$24,100	$23,100	-1,000	-4%

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Performance Summary

FY 1995 Accomplishments

- Achieved National Performance Review commitment to implement risk-based decision-making criteria into Departmental budgeting through the environment, safety, and health Management Planning Process.

- Achieved full participation of all Departmental sites in the environment, safety, and health Management Planning and Budget process.

- Developed new contract language (incorporated good environment, safety, and health business practices), which was included in four Requests for Proposal (RFP) for the management and operating contracts at DOE sites.

- Improved access to environment, safety, and health information through the EH Technical Information Services (TIS) Home Page (including access to DOE Lessons Learned Program data, Occupational Safety and Health Administration (OSHA) regulatory information, Voluntary Protection Program documentation; and radiation and hazardous waste information). TIS was recognized by the University of Michigan as an "Internet Jewel" for FY 1995.

- Facilitated Internet access to full text information (e.g., the Human Radiation Experimentation database, Operating Experience reports, Vulnerability studies, and the NEPA Home Page). The NEPA Home Page was recognized by the President's Council on Environmental Quality (CEQ) as a "model information source" and was used as the prototype for the Government-wide NEPA Internet page.

- Consolidated the environment, safety, and health Information Outreach program with publication of the ES&H Synergy newsletter, which consolidated six existing publications into one and expanded the DOE Safety Conference to encompass the full scope of environment, safety, and health activities.

- Developed and implemented an automated system for information management and tracking training activities (includes registration, course catalogs, Individual Development Plans, and personal Technical Qualifications documentation).

- Completed EH-related Technical Qualification Standards documents and initial development of training for EH staff and managers in the implementation of the Technical Qualifications program and developed an environment, safety, and health Training Implementation Plan.

- Support grants, fellowships, and training programs at colleges and universities to ensure the education and development of the future DOE EH workforce and provide specialized environment, safety, and health training in radiation protection and nuclear safety.

FY 1996 Accomplishments (to date and planned)

- Institutionalize and integrate environment, safety, and health risk-based planning and budgeting into overall line program risk-management activities.
- Utilizes a risk-based prioritization approach to review line program environment, safety, and health budgets and ensure that all risk-significant environment, safety, and health issues are adequately addressed in the Department's budget.
- Institutionalize environment, safety, and health contract language into DOE Acquisition Regulations (DEAR) clauses, ensure that the language is incorporated into the new contracts and RFPs issued during the year, and assist new contractors in appropriate implementation.
- Complete requirements analysis for providing DOE Headquarters, field offices, and management and operating contractors with integrated environment, safety, and health information systems and services.
- Enhance the Department's ability to provide quality environment, safety, and health information through an outreach program, which includes demonstrations of the EH Technical Information Service at conferences and meetings, feedback surveys, and full integration of all environment, safety, and health information on TIS.
- Enhance training of EH professional and technical personnel to increase their proficiency and develop and improve the skills mix of EH staff to more effectively implement the overall EH mission and programs.
- Support grants, fellowships, and training programs at colleges and universities to ensure the education and development of the future DOE EH workforce and provide specialized environment, safety, and health training in radiation protection and nuclear safety.
- Establish a postdoctoral research program in the radiation sciences designated to foster human health effects studies at a U.S. institution of higher learning.

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FY 1997 Planned Accomplishments

- Help ensure accountability for environment, safety, and health performance by line managers, and work with the Chief Financial Officer to demonstrate success in accomplishing environment, safety, and health cost accounting for program activity execution at two pilot sites as a model for the entire Department. ($3.0 million)

- Continue to ensure new environment, safety, and health contract language is incorporated into the new contracts and RFPs issued during the year; ensure good environment, safety, and health performance measures; and assist new contractors in implementation of environment, safety, and health management processes (i.e., planning, budgeting, and program execution). ($2.0 million)

- Complete re-engineering/integration of Departmental environment, safety, and health occurrence, accident/incident analysis, and reporting systems, and empower users to perform site analyses, trending, reporting, and integrated information retrieval. ($6.0 million)

- Continue to manage environment, safety, and health information systems to provide communications and processing capabilities that allow DOE staff to effectively communicate and access information. ($6.1 million)

- Continue to develop training capabilities that improve the technical competency and skills mix of EH staff to more effectively implement the overall EH mission and programs. ($0.4 million)

- Support grants, fellowships, and training programs at colleges and universities to ensure the education and development of the future DOE EH workforce ($3.4 million) and specialized environment, safety, and health training for DOE workforce. ($2.2 million)

Explanation of Funding Changes FY 1996 to FY 1997

- Continued reduction of support service contractors. ($-1.0 million)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands)
ENVIRONMENT, SAFETY AND HEALTH
PROGRAM DIRECTION, EH NON-DEFENSE

PROGRAM PERFORMANCE SUMMARY:

Mission Supporting Goals and Objectives

Program Direction provides overall direction and administration support for the EH programs to ensure that all operations are conducted in the most efficient manner consistent with environment, safety, and health activities. Program Direction provides funds for all personnel-related expenses, capital equipment, and contracted services of Headquarters. The Departmental Working Capital Fund, established to fund business-type activities traditionally financed in the Departmental Administration account, is funded from this decision unit. The **goal** of Program Direction is to provide resources and skills in a way that provides DOE's line management programs with the tools it needs to protect workers, the public, and the environment at DOE sites.

Budget Structure Changes

The Department's Working Capital Fund, established to fund business-type activities, is transferred from the Departmental Administration account to the Department's program office.

Working Capital Fund supports the following: rent and utilities, printing, copying, postage, supplies, telephones, computers, Defense Contract Audit Agency audits, contract close out, workmans compensation, and Senior Executive Service bonuses.

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Funding Schedule

Headquarters	FY 1995	FY 1996[4]	FY 1997	$ Change	% Change
Salaries, Benefits	$37,245	$32,836	$ 32,600	$-236	1%
Travel	2,145	1,750	1,600	-150	8%
Support	240	225	50	-175	22%
Working Capital Fund	4,446	4,504	4,796	+292	6%
Capital Equipment	$1,037	$ 0	$ 0	$ 0	$ 0
Program Direction Total	$45,113	$39,315	$39,046	$-269	1%
FTEs	347	316	316	0	0
Average FTE[5]	127	124	124	0	0

FY 1995 Measurable Performance Activities

- Developed technical qualifications program.
- Reduced utilization of contractors.
- Supported effort for Human Radiation Experiments activities.

[4] Reflects Program Direction of the Energy Supply, Research and Development portion of Environment, Safety and Health.

[5] Capital Equipment is not incorporated in the weighted FTE average.

FY 1996 Measurable Performance Activities

- Reduction and streamlining of contractor utilization.
- Implement technical qualifications program.
- The field, contractors, and outside organizations increasing adopt EH standards, environment, safety, and health performance trends improve; e.g., decreased lost work days due to occupational illness or injury, decreased number of personnel contaminations with radionuclides, and a decreasing trend in the number of serious accidents where policy is a root cause of the problem.

FY 1997 Planned Accomplishments

- Continued reduction and streamlining of contractor utilization.
- Continue technical qualifications program.
- Support the protection of worker health and safety.

Explanation of Average FTE Cost

- The average FTE cost includes salaries, benefits, travel, support, and working capital fund. The reduction from FY 1995 to FY 1997 reflects a streamlining of contractor support. The working capital fund for EH reflects all 422 FTEs. The average weighted FTE across EH is $118,000.

Explanation of Funding Changes

- Continued reduction and streamlining of contractor utilization and Federal travel.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
ENVIRONMENT, SAFETY AND HEALTH
PROGRAM OBJECT CLASS SUMMARY, EH NON-DEFENSE
PROGRAM DIRECTION
(Dollars in Thousands)

		FY 1995 Comparable	FY 1995 Non-comparable	FY 1996 Comparable	FY 1996 Non-comparable	FY 1997 Budget Request
Personnel Compensation:						
11.1	Full-time permanent	$27,185	$27,185	$23,890	$23,890	$24,845
11.3	Other than full-time permanent	3,986	3,986	3,625	3,625	2,559
11.5	Other personnel compensation	980	980	880	880	880
11.9	Total personnel compensation	32,151	32,151	28,395	28,395	28,284
12.1	Civilian personnel benefits	4,825	4,825	4,241	4,241	4,241
13.0	Benefits for former personnel	184	184	125	125	125
21.0	Travel and transportation of persons	2,145	2,145	1,750	1,750	1,600
23.3	Communications, utilities, and misc.	0	0	0	0	4,144
24.0	Printing and reproduction	240	240	225	225	423
26.0	Supplies and Materials	85	85	75	75	229
31.0	Equipment	1,037	1,037	0	0	0
	Subtotal	40,667	40,667	34,811	34,811	39,046
	Working Capital Fund	4,446	4,446	4,504	4,504	0[7]
	Use of Prior Year Balances	0	0	(4,396)	(4,396)	0
	Unobligated balance available, start of year	0	0	0	0	0
	Unobligated balance available, end of year	4,396	0	0	0	0
99.9	TOTAL	$49,509	$45,113	$34,919	$34,919	$39,046

[7] Working capital fund in FY 1997 of $ 4,796,000 is spread across communications, utilities, and miscellaneous as well as printing and reproduction and supplies and materials.

Energy Research

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ENERGY RESEARCH

VOLUME 2

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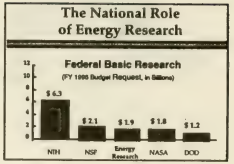
Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy Research					
Biological and environmental research	408,245	406,401	379,075	-27,326	-6.7%
Fusion Energy	333,292	227,394	255,600	28,206	12.4%
Basic energy sciences	596,727	654,576	653,675	-901	-0.1%
Computational and technology research	175,778	150,498	158,143	7,645	5.1%
Advanced neutron source	12,781	—	—	—	—
Energy research analyses	3,330	3,414	2,000	-1,414	-41.4%
Multiprogram energy labs - facility support	28,702	34,105	28,885	-5,220	-15.3%
University and science education programs	61,461	18,900	19,900	1,000	5.3%
Program direction	50,967	43,704	42,154	-1,550	-3.5%
Small business innovation research (SBIR)	72,439	—	—	—	—
Subtotal, Energy Research	1,743,722	1,538,992	1,539,432	440	0.0%
Use of prior year balances	-19,696	-35,982	—	35,982	100.0%
Total, Energy Research	**1,724,026**	**1,503,010**	**1,539,432**	**36,422**	**2.4%**

Mission



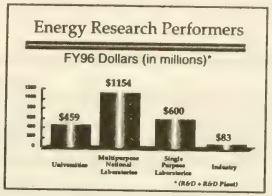
The Office of Energy Research (ER) invests in basic research to enable the Department to meet its science and technology intensive missions. Our programs produce scientific and technical knowledge needed to create new and improved energy technologies, to maintain U.S. scientific leadership in understanding energy and matter, and to provide facilities for research in the physical and life sciences needed by U.S. researchers for forefront research. Our research extends to an unusually broad spectrum of scientific disciplines, including materials sciences, chemical sciences, engineering sciences, geosciences, energy biosciences, computational and applied mathematical sciences, high energy and nuclear physics, fusion science, biological and biomedical sciences, and environmental research. Over the past year under the Strategic Facilities Initiative started in FY 1996, ER has increased access to its basic research facilities to scientists in these fields.

ER's activities comprise over 95 percent of the science and technology business line of the DOE Strategic Plan, *Fueling a Competitive Economy*. ER programs support several thousand individual projects and hundreds of laboratories, universities, and other research facilities throughout the United States. Through direct support and access to our user facilities, ER enables multidisciplinary research on important national problems and individual investigations by scientists and engineers in many disciplines.

Basic research supported by ER is increasingly important to America. As reported by the Wall Street Journal, "Some of the biggest U.S. Corporations have cut back sharply on research into 'basic science'--the exploration of how nature works at a fundamental level--to pursue short-term goals and to commercialize products more quickly." As 16 chairpersons and CEO's of major U.S. corporations wrote to the Congress, "History has shown that it is federally sponsored research that provides the truly patient capital needed to carry out basic research and create an environment for inspired risk-taking that is essential to technological discovery. "

ER supports the Federal Government's third largest basic research program. Only the National Institutes of Health and National Science

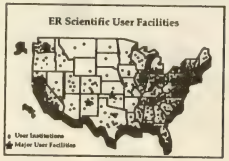
Foundation programs are larger. Over 18,000 scientists and engineers from almost 600 universities, companies and government laboratories performed research at ER's laboratories and many special user facilities in 1995. These facilities include large and expensive x-ray and gamma-ray "light" sources, research reactors, and high energy and nuclear physics particle accelerators located in 11 states. Our research at universities helps educate and nurture the next generation of scientists and engineers. More important, these young people bring the creative enthusiasm of youth to tackle national problems.



Over the past 50 years, DOE has established an extensive national laboratory and university network of expertise in science and engineering. This network has supported the research of over 67 Nobel Prize winners. Today, ER multidisciplinary research at these facilities produces knowledge, instruments, techniques, and materials that others can use for additional research or for technology development. ER's Human Genome Program, for example, originated from concerns about the genetic effects of energy-related nuclear radiation and chemical byproducts. Today, its discoveries enable medical researchers to develop new biotechnology for diagnosing and treating diseases such as cancer.

Consistent with the Department's Strategic Plan, ER has identified five goals. Our five broad goals point us in the right direction. They sustain our longstanding traditions of emphasizing scientific excellence and working in partnership with other organizations dedicated to advancing energy and supporting science. Reaching them will help provide America with the range of energy and policy options it needs for future prosperity. The goals are:

- Enable the United States to maintain a position of world leadership in science, mathematics, and engineering needed to enhance energy productivity and ensure reliable energy services while preserving human and environmental health and safety.
- Obtain major new insights into the nature of energy and matter to better understand our natural world.
- Build and operate the best and most advanced scientific research facilities and infrastructure to advance the frontiers of science.
- Ensure that ER's programs are of high quality, highly productive, and that they are widely known, valued, and trusted.
- Ensure that ER programs protect our workers, the public and the environment during the support of and conduct of research.



Strategy

ER's budget request of $2,548.6 million for FY 1997 is shown in Table 1 by major ER program and appropriation. ER is seeking $653.7 million for its Basic Energy Sciences program, $379.1 million for its Biological and Environmental Research program, $679.1 million for its High Energy Physics program, $318.4 million for the Nuclear Physics program, $255.6 million for the Fusion Energy Sciences program, and $158.1 million for Computational and Technology Research. The request also includes $19.1 million for the University and Science Education program, $28.9 million for the Multiprogram Energy Laboratories Facility support program, $11.6 million for General Science Program Direction, $42.2 million for ER Energy Supply Program Direction, and $2.0 million for Energy Research Analysis.

Energy Research Goals

- World leadership in energy science
- New insights into the nature of energy and matter
- The best research infrastructure for energy science and basic research
- High quality, highly productive, widely known, valued, and trusted research programs
- Protection of our workers, the public and the environment during the support of and conduct of research

ER's FY 1997 request includes a balanced set of investments that uphold the Office's leadership in fundamental research, scientific facilities, and building the nation's scientific and technical strength. To leverage these investments with limited resources, we are working with university, industrial, and national laboratory research partners to multiply the effectiveness of our activities.

Strategies to support our goals reaffirm our traditional reliance on merit review with peer evaluation of investigator-initiated proposals as we seek new directions for our research programs. These programs will help expand the Nation's human and intellectual resources to ensure that America's capabilities for scientific and technological innovation are constantly replenished. The strategies are:

- *Support science with a purpose.* To warrant Office of Energy Research support, a research project must be mission-relevant. That is, it must advance knowledge in key fields and disciplines, further pursuit of departmental missions, or enable timely response to national goals. Our programs also cover fields not covered by traditional disciplines that offer challenges for new knowledge and opportunities for fulfilling departmental missions and national goals.

- *Provide large scale facilities.* ER supports large and complex research facilities to meet the Nations science and technology goals. Specifically, we focus on facilities that are too expensive for a single institution or group of institutions to build. We make the facilities available for the best research proposed by university, industrial, and government scientists as decided by peer review. Our strategy includes streamlined management of these facilities and investments in technology development. Timely repair and maintenance of their general purpose infrastructure advances the capabilities and reduces the costs of facilities.

- *Coordinate research on complex national problems important to DOE missions.* ER programs coordinate and fund multidisciplinary research at universities and the National Laboratories on complex national problems requiring a long investment horizon to find satisfactory solutions. The problems are found in areas such as fusion energy sciences, global climate change, and advanced and environmentally conscious manufacturing. Additional areas include advanced materials and processing, medical applications of advanced imaging techniques, high performance computing and communications, and mapping and sequencing the human genome. The National Laboratories, with their multidisciplinary teams, are special resources for coordinating and performing this research.

Energy Research Achievements

- Nobel Prize
  - 1994 Physics
  - 1995 Physics and Chemistry
- Top Quark Production at Fermilab
- World Record in Tokamak Fusion Test Reactor
- First Beam in Advanced Photon Source
- Human Genome Program - 1996 Completed Maps of Two Human Chromosomes

- *Assure excellence in research.* We emphasize initiation of proposals by investigators and select the best using peer review. Our various standing advisory committees help us use the Nation's science and technology communities to identify the most important research to support and the best way to do it. Our program managers measure research quality within technical areas or disciplines with scheduled periodic evaluations, including assessment by panels of technical experts. For excellence in the future, we reach out to improve the quality of and access to science, mathematics, and engineering education to replenish America's storehouse of scientific talent.

- *Continuously improve the quality of our administrative processes.* We increase our effectiveness and productivity by improving program management practices and by using performance based contracts with our laboratories. Our operating policies emphasize the central role of the grantees and contractors in achieving environmental, safety, and health excellence through continuing self assessments and corrective action systems. Quality improvement includes leveraging resources through domestic and international partnerships. ER's programs seek out America's excellent scientists, employees, and contractors from all of its people.

- *Tell better the role and benefits of ER.* We are reaching out more than ever through presentations, newsletters, and the Internet to inform the public about the exciting results of ER research. An information infrastructure under development will ease communications, research collaborations, and remote access to shared resources and facilities.

The Office's basic research portfolio has brought great success in advancing science, the Department's missions and the welfare of the Nation. In 1995, research supported by the Office of Energy Research was cited in Nobel Prize awards in physics and chemistry. The award winning physicists discovered the neutrino and the tau lepton, key steps in identifying the fundamental particles in nature. Our chemistry award winners found the effect of freons on the ozone layer in the Earth's atmosphere and, thus, the effect of humankind on the environment.

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Our physics researchers discovered the Top Quark--the last undiscovered quark of the six predicted by the Standard Model of physics--a long awaited scientific achievement. ER research advanced our understanding of such important phenomena as Global Climate Change. It explored new areas of science such as the Human Genome that will have extensive effects on human health and the environment. In the human health area, our human genome research program published detailed maps of two human chromosomes.

ER basic research enabled industrially promising innovations such as a technique to rapidly screen new compounds and materials to identify their properties. Other ER research created flexible superconducting tapes carrying electrical currents 100 times greater than previously possible which may lead to more efficient electrical storage and transmission devices. ER research on high speed computing and communication pointed the way to technology that can accelerate growth of the information highway by doubling data transmission rates over telephone lines.

In 1995, *R&D Magazine* recognized inventions engendered by ER-supported basic research with 7 R&D-100 Awards. Each year, *R&D Magazine* presents these awards to inventions with exceptional industrial promise. The 1995 award-winning technologies, for example, will aid in soil cleaning, ultrasonic imaging, and emissions monitoring.

On the facilities front, our researchers in Virginia in 1995 started the first experiments at the Continuous Electron Beam Accelerator Facility. The Advanced Photon Source at the Argonne National Laboratory, the B-Factory at the Stanford Linear Accelerator Center, the Environmental Molecular Science Laboratory at the Pacific Northwest Laboratory, and the Combustion Research Facility at the Sandia National Laboratories are on schedule. The Tevatron accelerator at Fermilab set a world record for particle beam luminosity. We completed the Radioactive Ion Beam Facility at Oak Ridge National Laboratory that allows scientists to learn the properties of unstable nuclei encountered in astrophysics.

Energy Research Strategies

- Support science with a purpose
- Coordinate multidisciplinary research on complex national problems important to the DOE missions
- Provide large scale facilities and technology for doing science
- Assure excellence in research
- Continuously improve the quality of our administrative processes
- Tell better the role and relevance of Energy Research

Major Changes

In formulating the program this year we have as our highest priorities: sustain progress in high energy physics and nuclear physics, transition to a fusion energy sciences program, optimize use of ER's scientific and computational facilities, selective expansion of programs, and leverage basic research through partnerships with DOE technology R&D programs

For FY 1997, the Biological and Environmental Research Program will give more emphasis to biotechnology research. Drawing on core competencies developed in ER's human genome and environmental research programs, we will speed development of new bioremediation technology for

use at DOE facilities. ER's research aimed at completing mapping and sequencing of the human genome is on target for completion in the year 2005. In FY 1997, more emphasis will be devoted to high throughput genome sequencing. We continue research into new ways to image the effects of carcinogens. In FY 1997, ER will expand its exploration of the world of microbial diversity, mapping and sequencing the genomes of microorganisms for possible use in bioremediation.

Consistent with its reduced budgets, the fusion program is being redirected toward smaller-scale, long-term fundamental research at universities and our laboratories as recommended by the Fusion Energy Advisory Committee. In addition, the program will preserve our capabilities to contribute to international efforts to develop fusion as an energy technology. It will do this by advancing plasma science; by developing fusion science, technology, and plasma containment innovation in the domestic program; and by remaining a partner in the international effort.

Energy Research
FY 1997 Priorities

- Sustain High Energy and Nuclear Physics
- Transition To A Fusion Energy Sciences Program
- Maintain Science Facilities Utilization
- Selective Expansion of Programs
- Integrate Basic Research and Applied Programs

As recommended by the Yergin Panel, we are strengthening collaborations with the Office of Environmental Management and the Office of Energy Efficiency and Renewable Energy. In partnership with the Office of Environmental Management, for example, we perform fundamental research that addresses problems in environmental management, remediation, and restoration that are intractable without new, fundamental scientific information and technologies. In partnership with the Office of Energy Efficiency, for example, we perform basic research in support of the Partnership for a New Generation of Vehicles. This research helps to bridge a gap between the Department's fundamental research and its other programs.

The ER high energy physics program continues to explore participation in the Large Hadron Collider project at CERN. This activity will enable the U.S. to participate in new discoveries at the highest energy frontier. We plan to complete the B-factory project at the Stanford Linear Accelerator Center in FY 1998 and the Main Injector project at Fermilab in FY 1999. Both projects are on schedule and within estimated costs. The Main Injector will provide a doubling of intensity for the fixed target program and a fivefold increase in luminosity for collider experiments. This will, among other things, let us take a closer look at the nature of the top quark. The B-factory will enable scientists to study charge-parity violation, a process that explains the complete dominance of matter over antimatter in our universe and, therefore, our very existence. In nuclear physics, construction of the Relativistic Heavy Ion Collider (RHIC) continues. Total project cost, however, has increased because of rebaselining necessitated by a FY 1996 congressional funding reduction to the project.

We are extending the availability and utility of our laboratories and user facilities through high performance computing and communications. Advances from our research are part of the joint Energy Research and Defense Programs DOE 2000 Initiative. The new capabilities will enable scientists nationwide to work together on problems as easily as if they were at the same National Laboratory or

facility. We denote this as transforming our research infrastructure from distinct laboratories into "collaboratories."

To help strengthen America's technical work force and support DOE's missions, ER will continue its leadership in the national effort to improve math, science, and engineering education. In FY 1996, over 10,000 undergraduate, graduate, and postdoctoral students and faculty will participate in DOE science education programs at our national laboratories.

In its action on the FY 1996 budget, the Congress directed that all Federal staff be budgeted in single Program Direction decision units for each appropriation. Energy Research's General Sciences and Research staffing has always been budgeted at the appropriation level and the congressional direction has not had any impact on that account. Energy Research's Energy Supply Research and Development staffing, however, has previously been included in the individual program accounts in the Energy Supply Research and Development appropriation, namely Basic Energy Sciences, Biological and Environmental Research, Fusion, etc. In compliance with the referenced congressional direction, those various accounts have been merged into a single Energy Research-Energy Supply Program Direction account for the first time in FY 1997.

Investing In The Future

"Investment in R&D--public and private--is America's investment in its future. It is a major driver of economic growth and job creation, and one of the most important foundations for America's future economic competitiveness and international leadership."

Secretary of Energy Advisory Board
Task Force on Strategic Energy Research and Development
Daniel Yergin, Chairman

Details supporting the budget request for the two Program Direction accounts are included in the narrative budget justification for each. The combined request for FY 1997 for the two accounts is $53.7 million. The attached chart illustrates the distribution of the FY 1997 request among six major categories.

Using any reasonable criteria, Energy Research is among the most efficiently managed research organizations in the Federal Government. The Energy Research program is one of the largest and most complex Federal basic science programs. Energy Research's staffing levels, however, are small compared with those of other Federal research organizations and other Department of Energy program offices. Furthermore, Energy Research has been a very conservative user of support services contracts. Planned FY 1997 support services funding represents a mere four tenths of a percent of the total Energy Research budget request. The FY 1997 budget requested for Program Direction is essential for Energy Research to sustain technical excellence in its programs and to meet its program and advisory missions.

Closing

Through multidisciplinary research, our programs advance fundamental understanding of matter and enable energy and complex ←

leading to efficient, diverse and reliable energy sources. The knowledge gained leads to improved health and environmental quality and to a more productive and competitive economy. Energy Research provides the United States with the finest and most advanced scientific research facilities and infrastructure. To get the most research out of every dollar appropriated, we work to ensure our programs are the highest quality and productive. It is in the interest of the Nation that these programs are sustained for the benefit of future generations.

Martha A. Krebs
Director
Office of Energy Research

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OFFICE OF ENERGY RESEARCH
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
B/A
(dollars in thousands)
Table 1
Funding By Program and Appropriation (Comparable)

	FY 1995 Conf. Approp.	FY 1996 Conf. Approp.	FY 1997 Cong. Request
Energy Supply R&D			
Basic Energy Sciences	596,727	$654,576	$653,675
Computational and Technology Research	175,778	150,498	158,143
Advanced Neutron Source	12,781	0	0
Fusion Energy Sciences	333,292	227,394	255,600
Biological and Environmental Research	408,245	406,401	379,075
Energy Research Analyses	3,330	3,414	2,000
University and Science Education	61,461	18,900	19,900
Multiprogram Energy Labs-Facilities Support	28,702	34,105	28,885
ER Energy Supply R&D Program Direction	50,967	43,704	42,154
Small Business Innovative Research	68,993	0	0
Small Technology Transfer Research	3,446	0	0
General Reduction for Use of Prior Year Balances	-19,696	-35,982	0
Total, Energy Supply R&D-Energy Research	1,724,026	1,503,010	1,539,432
General Science and Research			
High Energy Physics	632,163	667,000	679,125
Nuclear Physics	326,776	304,500	318,425
General Science Program Direction	11,400	10,650	11,600
General Reduction for Use of Prior Year Balances	-10	0	0
Total, General Science and Research	970,329	982,150	1,009,150
TOTAL, ENERGY RESEARCH	$2,694,355	$2,485,160	$2,548,5[illegible]

OFFICE OF ENERGY RESEARCH
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
B/A
(dollars in thousands)
Table 2
Funding By Cross-Cutting Area

	FY 1995 Conf. Approp	FY 1996 Conf. Approp.	FY 1997 Cong. Request
Global Climate Change			
Biological and Environmental Research	118,500	110,800	112,400
Climate Change Action Plan	0	0	0
Partnership for A New Generation of Vehicles			
Basic Energy Sciences	0	5,000	7,800
Pollution Prevention			
Fusion Energy Sciences	0	10	0
High Energy Physics	220	340	340
Nuclear Physics	0	900	0
Biological and Environmental Research	800	1,040	480
Multiprogram Energy Laboratory Facilities Support	900	1,340	620
Other	245	220	360
Science and Education Programs 1/			
University and Science Education	61,466	18,900	19,900
Laboratory Technology Research	46,539	17,659	21,789

1/ In addition, Energy Research Support for college and university grants totals $493 million in FY 1995, $459 million in FY 1996, and $454 million in FY 1997. Much of this contributes to the education of scientists and engineers.

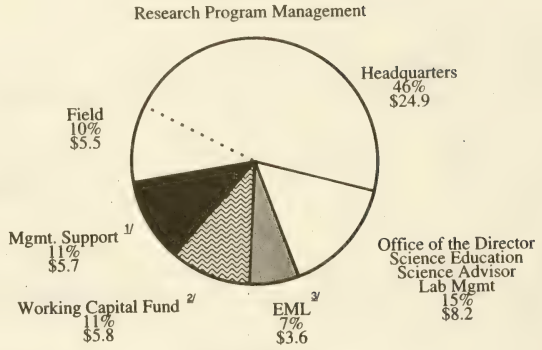
OFFICE OF ENERGY RESEARCH
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
(FTEs)

Federal Staffing Summary

	FY 1995 Conf. Approp.	FY 1996 Conf. Approp.	FY 1997 Cong. Request
ER-Energy Supply R&D Program Direction			
Field	75	67	56
Headquarters	347	273	254
Total, ER-Energy Supply R&D Program Direction	422	340	310
General Science Program Direction			
Field	33	33	33
Headquarters	63	59	57
Total, General Science Program Direction	96	92	90
Total Energy Research			
Field	108	100	89
Headquarters	410	332	311
Total, Energy Research	518	432	400

OFFICE OF ENERGY RESEARCH
FY 1997 CONGRESSIONAL BUDGET SUBMISSION

PROGRAM DIRECTION FUNDING BY CATEGORY
($ in millions)



Total Program Direction = $53.7

1/ Administrative support e.g. budget, administrative, procurement, construction, and Environmental, Safety and Health support.

2/ Funds for centrally provided common goods and services e.g.utilities, maintenance, printing, copying etc.

3/ Environmntal Measurements Laboratory, New York City.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
B/A IN THOUSANDS OF DOLLARS
SITE FUNDING
(dollars in thousands)

AMES LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$15,475	$16,028	$16,227
Biological and Environmental Research	657	596	589
Computational and Technology Research	6,053	5,341	4,570
University and Science Education	428	95	100
TOTAL AMES LABORATORY	$22,613	$22,060	$21,486

ARGONNE NATIONAL LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$177,375	$145,511	$141,579
Advanced Neutron Source	(200)	0	0
Fusion Energy Sciences	7,743	5,025	4,070
Biological and Environmental Research	19,318	15,011	8,318
Computational and Technology Research	20,104	12,551	11,558
High Energy Physics	8,918	8,580	8,410
Nuclear Physics	15,623	15,491	16,220
Energy Research Analysis	300	150	0
University and Science Education	5,298	2,255	2,700
Multiprogram Energy Laboratories-Facilities Support	6,371	8,522	6,238
TOTAL ARGONNE NATIONAL LABORATORY	$260,840	$213,096	$199,093

BROOKHAVEN NATIONAL LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$71,949	$82,252	$80,467
Fusion Energy Sciences	83	97	97
Biological and Environmental Research	31,051	25,804	27,032
Computational and Technology Research	8,530	3,031	4,500
High Energy Physics	76,347	73,712	70,782
Nuclear Physics	99,655	99,320	105,875
Energy Research Analyses	100	0	0
University and Science Education	2,063	695	900
Multiprogram Energy Laboratories-Facilities Support	7,782	9,725	13,302
TOTAL BROOKHAVEN NATIONAL LABORATORY	$297,560	$294,636	$302,955

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
B/A IN THOUSANDS OF DOLLARS
SITE FUNDING
(dollars in thousands)

CONTINUOUS ELECTRON BEAM ACCELERATOR FACILITY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$0	$0	$0
High Energy Physics	211	220	211
Computational and Technology Research	669	150	180
University and Science Education	593	100	150
Fusion Energy Sciences	0	5	0
Nuclear Physics	69,103	67,375	69,000
TOTAL CONTINUOUS ELECTRON BEAM ACCEL. FAC.	$70,576	$67,850	$69,541

FERMI NATIONAL ACCELERATOR LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Computational and Technology Research	$205	$0	$0
Biological and Environmental Research	1,050	1,575	2,100
University and Science Education	1,257	355	350
High Energy Physics	248,631	256,213	259,743
TOTAL FERMI NATIONAL ACCEL. LAB	$251,143	$258,143	$262,193

IDAHO NATIONAL ENGINEERING LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$3,660	$3,024	$3,138
Fusion Energy Sciences	3,223	2,732	2,323
Biological and Environmental Research	3,340	2,326	2,445
Nuclear Physics	0	0	100
University and Science Education	375	120	150
Computational and Technology Research	510	95	0
TOTAL IDAHO NATIONAL ENG. LAB	$11,108	$8,297	$8,156

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
B/A IN THOUSANDS OF DOLLARS
SITE FUNDING
(dollars in thousands)

LAWRENCE BERKELEY NATIONAL LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$54,398	$62,866	$62,011
Fusion Energy Sciences	6,066	5,080	5,305
Biological and Environmental Research	46,648	35,177	24,049
Computational and Technology Research	15,248	30,535	50,929
High Energy Physics	23,111	21,393	20,983
Nuclear Physics	25,685	23,760	24,445
University and Science Education	2,969	825	1,050
Multiprogram Energy Laboratories-Facilities Support	6,183	5,824	1,370
TOTAL LAWRENCE BERKELEY NATL. LAB	$180,308	$185,460	$190,142

LAWRENCE LIVERMORE NATIONAL LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$5,709	$5,658	$4,910
Biological and Environmental Research	21,327	21,508	19,285
Fusion Energy Sciences	16,162	9,393	8,659
High Energy Physics	1,445	490	490
Nuclear Physics	812	640	720
University and Science Education	1,548	395	500
Computational and Technology Research	47,738	22,534	1,635
TOTAL LAWRENCE LIVERMORE NATL LAB	$94,741	$60,618	$36,199

LOS ALAMOS NATIONAL LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$11,655	$19,280	$17,272
Fusion Energy Sciences	7,150	4,297	3,715
Biological and Environmental Research	25,305	20,343	20,602
Computational and Technology Research	14,105	12,907	13,763
University and Science Education	1,474	440	500
High Energy Physics	1,005	806	913
Nuclear Physics	39,514	11,747	10,460
TOTAL LOS ALAMOS NATL. LAB	$100,208	$69,820	$67,225

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
B/A IN THOUSANDS OF DOLLARS
SITE FUNDING
(dollars in thousands)

NATIONAL RENEWABLE ENERGY LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$3,533	$4,237	$3,790
University and Science Education	261	50	50
Computational and Technology Research	1,371	1,150	1,000
TOTAL NATIONAL RENEWABLE ENERGY LAB	$5,165	$5,437	$4,840

OAK RIDGE NATIONAL LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$83,590	$85,344	$90,502
Advanced Neutron Source	12,832	0	0
Fusion Energy Sciences	27,863	19,477	9,300
Biological and Environmental Research	24,170	21,694	21,436
Computational and Technology Research	22,780	13,840	11,969
University and Science Education	1,420	737	800
High Energy Physics	470	250	406
Nuclear Physics	12,384	13,585	14,385
Energy Research Analysis	644	200	0
Multiprogram Energy Laboratories-Facilities Support	4,264	3,759	2,635
TOTAL OAK RIDGE NATL. LAB	$190,417	$158,886	$151,433

PACIFIC NORTHWEST LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$11,759	$11,132	$11,264
Fusion Energy Sciences	2,733	1,592	1,730
Biological and Environmental Research	83,933	92,187	84,456
Computational and Technology Research	8,510	3,465	4,400
High Energy Physics	45	45	52
Energy Research Analysis	465	250	0
University and Science Education	1,411	380	450
Multiprogram Energy Laboratories-Facilities Support	3,870	4,740	5,130
TOTAL PACIFIC NORTHWEST LABORATORY	$112,726	$113,791	$107,482

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
B/A IN THOUSANDS OF DOLLARS
SITE FUNDING
(dollars in thousands)

PRINCETON PLASMA PHYSICS LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Fusion Energy Sciences	$118,726	$60,431	$67,810
University and Science Education	381	300	300
Computational and Technology Research	425	0	0
TOTAL PRINCETON PLASMA PHYSICS LAB	$119,532	$60,731	$68,110

SANDIA NATIONAL LABORATORIES

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$20,023	$20,905	$28,021
Biological and Environmental Research	1,335	1,342	1,318
Computational and Technology Research	4,918	4,725	4,269
University and Science Education	1,487	1,275	1,300
Fusion Energy Sciences	8,208	5,723	5,560
TOTAL SANDIA NATL. LAB	$35,971	$33,970	$40,468

SAVANNAH RIVER LABORATORY

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Biological and Environmental Research	$148	$148	$0
Fusion Energy Sciences	378	282	400
University and Science Education	95	5	0
TOTAL SAVANNAH RIVER LABORATORY	$621	$435	$400

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
B/A IN THOUSANDS OF DOLLARS
SITE FUNDING
(dollars in thousands)

STANFORD LINEAR ACCELERATOR CENTER

	FY 1995 Approp. w/o PY Spread	FY 1996 Comp. Conf. Action w/o PY Spread	FY 1997 Congressional Request
Basic Energy Sciences	$16,095	$21,459	$20,996
Fusion Energy Sciences	50	50	50
High Energy Physics	162,663	174,070	173,450
Biological and Environmental Research	3,429	2,150	1,407
University and Science Education	183	80	100
Computational and Technology Research	353	0	0
TOTAL STANFORD LINEAR ACCEL. CTR	$182,773	$197,809	$196,003

BIOLOGICAL AND ENVIRONMENTAL RESEARCH PROGRAM

PROGRAM MISSION

The Biological and Environmental Research Program (BER) provides fundamental science to underpin the five business thrusts of the Department's strategic plan. Through its support of peer-reviewed research at national laboratories, universities, and private institutions, the program develops the knowledge needed to identify, understand, and anticipate the long-term health and environmental consequences of energy production, development, and use. The research is also designed to provide science in support of the Energy Policy Act of 1992.

The GOAL of the BER program is:

To develop the information, scientific "know-how," and technology for identification, characterization, and mitigation of adverse health and environmental consequences of energy production, development, and use.

The OBJECTIVES related to these goals are:

1. To CONTRIBUTE TO A HEALTHY CITIZENRY - Map the fine structure of the human genome by the year 2005; conduct fundamental research necessary for the development of advanced medical technologies and radiopharmaceuticals; and use the unique National Laboratory facilities to determine biological structure and function at the molecular and cellular level.

2. To CONTRIBUTE TO CLEAN UP OF THE ENVIRONMENT - Conduct fundamental research necessary for the development of advanced remediation tools and risk assessment methodologies for containing wastes and cleaning up DOE's contaminated sites, particularly in support of the mission of DOE's Environmental Management (EM) office.

3. To UNDERSTAND GLOBAL ENVIRONMENTAL CHANGE - Acquire the data and develop the understanding necessary to pre- and how energy production and use can affect the global and regional environment.

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PROGRAM MISSION - BIOLOGICAL AND ENVIRONMENTAL RESEARCH - (Cont'd)

SCIENTIFIC FACILITIES UTILIZATION:

The Biological and Environmental Research request includes $14,400,000 to maintain support of the Department's scientific user facilities. Facilities used for structural biology research, such as beam lines at the synchrotron light sources and research reactors, are included in the initiative for the first time in FY 1997. This funding will significantly provide research time for scientists in universities, federal agencies, and U.S. companies. It will also leverage both Federally and privately sponsored research consistent with the Administration's strategy for enhancing the U.S. National science investment.

PERFORMANCE MEASURES

Many performance measures related to basic science activities are qualitative rather than quantitative. The quality of the BER program is continuously evaluated through the peer-review process which includes: review panels comprised of outside experts, advisory committees, site visits, and reviews conducted by the Office of Energy Research. Examples of measures are:

1. New scientific discoveries and technological innovations that accelerate the sequencing and mapping of the human genome.

2. The development of advanced medical technologies and radiopharmaceuticals from fundamental research in molecular, structural, and cellular biology.

3. The development of advanced remediation tools (e.g., bioremediation) and risk assessment methodologies to contain hazardous waste and clean up DOE contaminated sites from fundamental research in environmental sciences, biology, molecular sciences, and mathematical modeling.

4. The development of advanced predictive models of the effects of energy use on the global environment from basic research in environmental sciences.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- A new structure has been developed for the Biological and Environmental Research program. The existing structure was a product of the long, productive history of the program. However, it no longer reflected the program priorities or the on-going integration across scientific disciplines. The new structure contains the following subprograms: Life Sciences; Environmental Processes; Environmental Remediation; and Medical Applications and Measurement Sciences.

PROGRAM MISSION - BIOLOGICAL AND ENVIRONMENTAL RESEARCH - (Cont'd)

- Critical information has been acquired regarding the molecular nature of the human genome and genomes of other organisms, and explorations are continuing on the basic chemical structures of important biological molecules as they relate to the functions of living cells. These continued advances are central to understanding health effects and human disease-susceptibility and for applications of biotechnology to the Department's missions. Increased emphasis will be placed on large-scale sequencing of select chromosomes.

- New strategies for cleanup, e.g., use of biotechnology (e.g., microbes that break down contaminants) will be developed for stubborn remediation problems.

- Advanced technologies have been developed to determine and mitigate the potential health effects from energy activities and cleanup operations. Emphasis is placed on the risks to human health from exposures to low levels of radiation and chemicals both at home (e.g., radon) and at the DOE workplace (e.g., waste site cleanup).

- Significant improvements are being made in the predictive tools needed to quantify human-induced and natural global environmental changes, including those from energy production and use. Emphasis remains on the role of clouds in climate and on developing improved climate models using the Nation's most advanced computers.

- New nuclear medicine technologies and radiopharmaceuticals for improved medical diagnosis and therapy are being developed, contributing to improved health care delivery while reducing costs by achieving early diagnosis and treatment. Increased emphasis will be placed on improved imaging methodologies.

- Research in the area of indoor air quality related to radon exposure has been completed and transfer of the methodologies to key stakeholders is underway (e.g., the Environmental Protection Agency and state and local authorities).

- The program has developed new measurement technologies (e.g., chemical and biological sensors) in the Medical Applications and Measurement Science subprogram to enhance research carried out in BER activities. Examples include resonance ionization spectroscopy for environmental dating and flow cytometry for chromosome and cell separations.

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BIOLOGICAL AND ENVIRONMENTAL RESEARCH

PROGRAM FUNDING PROFILE

(Dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Research					
Life Sciences	$138,838	$133,989	-$353 a/	$133,636	$138,965
Environmental Processes	102,852	103,667	-2,053 a/	101,614	102,337
Environmental Remediation	18,220	23,464	-151 a/	23,313	29,053
Medical Applications and Measurement Science	52,084	60,266	-3,075 a/	57,191	42,595
Program Direction	0	7,000	-7,000 b/	0	0
Related Capital Funding	29,051	28,505	-453 a/	28,052	30,012
Subtotal, Research	341,045	356,891	-13,085	343,806	342,962
Construction	67,200	62,595	0	62,595	36,113
Subtotal, Biological and Environmental Research	408,245	419,486	-13,085	406,401	379,075
Adjustment	-5,001 c/	-11,356 d/	0	-11,356 c/	0
Total, Biological and Environmental Research	$403,244 e/	$408,130	-$13,085	$395,045	$379,075

a/ Reprogramming to the Indian Energy Resources programs ($-1,645,000) and comparability transfer to Energy Research Energy Supply, Research and Development Program Direction ($-4,440,000).

b/ Comparability transfer to Energy Research Energy Supply, Research and Development Program Direction.

c/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program on a comparable basis. The total general reduction is applied at the appropriation level.

d/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program on a non-comparable basis. The total general reduction is applied at the appropriation level.

e/ Excludes $6,390,000 which was transferred to the SBIR program and $319,000 which was transferred to the STTR program.

Public Law Authorizations:

Public Law 95-91 "Department of Energy Organization Act" (1977)

BIOLOGICAL AND ENVIRONMENTAL RESEARCH
(Dollars in thousands)
PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office					
Los Alamos National Laboratory	$25,305	$20,343	$0	$20,343	$20,602
Sandia National Laboratory	1,335	1,342	0	1,342	1,318
Chicago Operations Office					
Ames Laboratory	657	596	0	596	581
Argonne National Laboratory (East)	19,318	15,011	0	15,011	8,318
Brookhaven National Laboratory	31,051	25,804	0	25,804	27,032
Environmental Measurements Laboratory	250	4,440	-4,440 a/	0	0
Fermi National Accelerator Laboratory	1,050	1,575	0	1,575	2,100
Idaho Operations Office					
Idaho National Engineering Laboratory	3,340	2,326	0	2,326	2,445
Oakland Operations Office					
Lawrence Berkeley National Laboratory	46,353	35,177	0	35,177	24,049
Lawrence Livermore National Laboratory	21,326	21,508	0	21,508	19,285
Stanford Linear Accelerator Facility (SSRL)	3,429	2,150	0	2,150	1,407
Oak Ridge Operations Office					
Oak Ridge Institute for Science & Education	6,994	3,050	0	3,050	6,112
Oak Ridge National Laboratory	24,170	21,694	0	21,694	21,436
Richland Operations Office					
Pacific Northwest National Laboratory	83,933	92,187	0	92,187	84,456
All Other Sites b/	139,734	172,283	-8,645 c/	163,638	159,934
Subtotal	408,245	419,486	-13,085	406,401	379,075
Adjustment	-5,001 d/	-11,356 e/	0	-11,356 d/	0
TOTAL	$403,244	$408,130	-$13,085	$395,045	$379,075

a/ Comparability transfer to Energy Research Energy Supply, Research and Development Program Direction.

b/ Funding provided to universitites, industry, other Federal agencies and other miscellaneous contractors.

c/ Reprogrammed to the Indian Energy Resources programs ($1,645,000), and comparabilty transfer to Energy Research Energy Supply, Research and Development Program Direction ($7,000,000).

d/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program on a comparable basis. The total reduction is applied at the appropriation level.

e/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program on a non-comparable basis. The total reduction is applied at the appropriation level.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995		FY 1996		FY 1997
		Comparable	Non-Comp	Comparable	Non-Comp	
	Direct Funding:					
	Personnel compensation:					
11.1	Full-time permanent		$3,659		$4,247	
11.3	Other than full-time permanent		67		63	
11.5	Other personnel compensation		169		225	
11.8	Special personal services payments		0		0	
11.9	Total personnel compensation	0	3,895	0	4,535	0
12.1	Civilian personnel benefits		781		1,063	
13.0	Benefits for former personnel		113		110	
21.0	Travel and transportation of persons		291		320	
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services	220	1,476	229	1,479	143
25.2	Other services	24,176	24,512	46,303	48,214	62,508
25.3	Purchases of goods and services from Government accounts					
25.4	Operation and maintenance of facilities	184,598	189,315	166,159	170,599	167,631
25.5	Research and development contracts					
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment	23,957	23,488	21,340	21,793	23,675
32.0	Land and structures	71,405	70,055	66,211	66,211	42,450
41.0	Grants, subsidies and contributions	98,851	98,851	95,889	95,889	82,668
99.0	Subtotal, obligations	403,207	412,777	396,131	410,213	379,075
	Reimbursable Obligations	0	0	0	0	0
99.9	Total Obligations	403,207	412,777	396,131	410,213	379,075
	Recovery of prior year obligations	-930	-923	-75	-75	
	Unobligated balance avail, start of year	-85	-941	-1,011	-2,008	
	Unobligated balance avail, end of year	1,052	2,046			
	Budget Authority	$403,244	$412,959	$395,045	$408,130	$379,075

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LIFE SCIENCES

(Tabular dollars in thousands. Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

Develops fundamental biological information and advanced technologies for understanding and mitigating the potential health effects of energy development, energy use, and waste cleanup; and develops and utilizes unique DOE resources and facilities to develop new biotechnology tools to address Departmental and national goals. Research is conducted in five areas: cellular biology, molecular biology, structural biology, the human genome, and health effects.

- Basic molecular and cellular biology research identifies and characterizes genes that repair damaged DNA and control cell proliferation to determine individual responsiveness to energy-related materials and susceptibility to adverse health effects, including cancer.

- Structural biology research is conducted at DOE national user facilities to determine the molecular structure of important biological molecules, such as enzymes, antibodies, or other proteins. Computational biology research combines computer science, structural biology, and genome research to predict the three dimensional structure of proteins from the DNA sequence of the corresponding gene. Knowledge of the structure and function of biological molecules will assist the application of biotechnology to diverse areas of national needs, e.g., rational drug design and environmental cleanup.

- Genome research develops and applies new technologies and resources to map and determine the sequence of 3 billion bases that make up the DNA found in a typical human cell and supports related studies in ethical, legal, and social implications (ELSI), especially issues of privacy, commercialization, and education. Microbial genome research characterizes the DNA and proteins in microbes with biotechnology applications in energy production, environmental bioremediation, and industry.

- The information and technologies developed in this research advance the biotechnology missions of the Department including: improved industrial processes, increased agricultural yields, energy production from biomass, environmental remediation, and improved molecular-based tools for health surveillance, biological dosimetry, and individual susceptibility determination.

II. **Funding Schedule:**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Structural Biology	18,554	$ 22,568	$ 21,930	$- 638	- 2.8%
Molecular and Cellular Biology	19,796	20,852	20,755	- 97	- 0.5%
Human Genome	65,752	67,792	75,730	+ 7 ,938	+ 11.7%
Health Effects	34,736	22,424	20,550	- 1,874	- 8.4%
Total, Life Sciences	$ 138,838	$ 133,636	$ 138,965	$+ 5,329	+ 4.0%

III. Performance Summary:

FY 1995 Accomplishments (to date and planned):

- o Cloned two genes involved in the regulation of cell growth; the genes are important for understanding the development and treatment of cancer.
- o Isolated genes responsible for two DNA repair enzymes that are associated with diseases that increase radiation sensitivity and susceptibility to cancer.
- o Developed strains of mice that are missing DNA repair genes, as models for humans with defects in these genes, to study the function and regulation of these genes.
- o Began three new projects aimed at sequencing the DNA of industrially important microbes and completed sequencing the DNA of Mycoplasma genitalium, the smallest free-living organism.
- o Completed the sequence of the first one million out of a total of three billion bases of human DNA.
- o Published high resolution physical maps of human chromosomes 16 and 19 that are useful to scientists interested in isolating disease genes on these chromosomes and that serve as templates for high-throughput DNA sequencing.
- o Transferred advanced DNA sequencing technologies from National Laboratories to several academic and private sector laboratories, improving the efficiency and cost-effectiveness of DNA sequencing. Made new resources of cloned DNA for mapping and sequer human DNA commercially available.

III. Performance Summary: LIFE SCIENCES (Cont'd)

- o Produced draft genetic privacy legislation now under consideration in many state legislatures; produced a reference "deskbook" for judges on the use of genetic evidence in court cases.
- o Completed a high school biology curriculum on the management of computerized genetic information.
- o Initiated projects to examine the role of individual susceptibility in cancer risk including genetic factors associated with lung cancer and differences in maternal/fetal susceptibility to environmental pollutants.
- o Research to examine the biological role of tissue's extracellular matrix demonstrated its importance in regulating the function of genes that determine normal tissue function; this is important in understanding the development of many diseases, including cancer.
- o Initiated studies to reevaluate radon doses in uranium miners to improve estimates of cancer risk; built a detector for noninvasively measuring radon decay products deposited in bones of miners.
- o Funding in the amount of $2,889,000 and $144,000 has been transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments

- o Commission new synchrotron beamlines for protein cryotallography at SSRL, ANL, and LBNL.
- o Initiate development of next generation of detectors for structural biology studies at synchrotron.
- o Expand the computational structural biology program to provide the basic computing tools and infrastructure to understand the relationship between the form and the function of biological molecules.
- o Characterize the function of two genes involved in regulating changes in cell growth following the exposure of cells or tissues to low levels of energy-related materials. Characterize defects in a DNA repair gene associated with a human disease.
- o Determine the response of two DNA repair genes to energy-related radiation and chemicals.
- o Characterize mice that are missing DNA repair genes for adverse health impacts.

III. Performance Summary: LIFE SCIENCES (Cont'd)

- o Determine the DNA sequence of two industrially important microbes.
- o Complete the sequence of two million bases out of a total of three billion of human DNA sequence.
- o Characterize clones of human DNA, used as resources for DNA mapping and sequencing, that represent one-third of all DNA in a typical human cell.
- o Highly acclaimed high school genetics curriculum to be translated into Spanish and used in the Los Angeles school system.
- o Publish overview of large animal life-span carcinogenesis studies, multi-study analysis of inhaled plutonium-238 oxide carcinogenesis in experimental animals, and multi-laboratory control data base for beagle dogs. These studies provide an important data base to help assess risk to clean-up workers who may be exposed to radionuclides with little or no human epidemiological data.
- o Develop a computer model that helps states, counties and municipalities locate the homes with a high indoor radon potential.
- o Identify two candidate genes involved in cell aging (senescence) that represent important target genes for controlling cell growth and, as a result, the development of cancer.
- o Increase the sensitivity of a technique (comparative genomic hybridization) for detecting small increases and decreases in the number of copies of individual chromosomes to identify or characterize abnormal cells in tissues or tumors.
- o Funding in the amount of $2,649,000 and $184,000 has been budgeted for the SBIR and STTR programs, respectively.

FY 1997 Planned Accomplishments:

- o Commission synchrotron beamline for biological x-ray spectroscopy at LBNL (ALS).
- o Initiate station for structural biology studies at the LANSCE facility at LANL.
- o Make preliminary prediction of a protein's three dimensional structure from the DNA sequence of the gene coding for the protein using new computational tools for applications such as rational drug design and environmental cleanup.

III. Performance Summary: LIFE SCIENCES (Cont'd)

- o Determine biological function of a DNA repair gene associated with a human disease.
- o Determine the function of two newly identified human genes using animal models in which cloned genes can be inserted and expressed.
- o Determine complete DNA sequence of four industrially important microbes. Characterize the evolutionary relationship between previously uncharacterized microbes of potential industrial importance.
- o Complete physical map of human genome by identifying unique DNA marker sequences for majority of human genes and placing information in public databases.
- o Complete the sequence of eight million out of a total of three billion bases of human DNA sequence.
- o Complete production and broadcast of radio series on genome research and television documentary on ELSI, "Genetics and Society."
- o Develop an animal carcinogenesis data base that will provide better estimates of risk for clean-up workers exposed to radionuclides with little or no human epidemiological data.
- o Make publicly available a computer model for finding homes with high levels of radon.
- o Test genes that may be responsible for the aging of cells by determining their ability to reverse the cell-aging process.
- o Reduce the size of the molecular probes needed for comparative genomic hybridization tests from whole chromosomes to defined DNA sequences to improve the resolution necessary to identify genes associated with cancer and genetic diseases.
- o Funding in the amount of $3,446,000 has been budgeted for the SBIR program.

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III. Performance Summary: LIFE SCIENCES (Cont'd)

Explanation of Funding Changes FY 1996 to FY 1997:

The increase ($+7,938,000) for genome research will be devoted to high-throughput sequencing of human DNA. These additional funds will support an increased output of finished DNA sequence from 2 million bases in FY 1996 to 8 million in FY 1997.

The decrease ($-1,874,000) in Health Effects is due to the phasing out of most traditional, long-term research in radiation biology in FY 1996, including programs at the University of California at San Francisco and Pacific Northwest National Laboratory and a partial phase out at the Inhalation Toxicology Research Institute in FY 1997. Priorities will be shifted to research that addresses the traditional issues of health risks of exposure to low levels of energy-related materials using the unique, new resources and tools developed in the Department's human genome, structural biology, and cellular and molecular biology programs.

The decreases in Structural Biology ($-638,000) and Molecular and Cellular Biology ($-97,000) are necessary to maintain overall program balance and direction.

ENVIRONMENTAL PROCESSES

(Tabular dollars in thousands. Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

Research is focused on understanding the basic chemical, physical, and biological processes of the Earth's atmosphere, land, and oceans and how these processes may be affected by energy production and use, primarily the emission of carbon dioxide from fossil fuel combustion. A major part of the research is designed to provide the data that will enable an objective assessment of the potential for, and consequences of, global warming. The program is comprehensive with an emphasis on the radiation balance from the surface of the Earth to the top of the atmosphere including the role of clouds and on enhancing the quantitative models necessary to predict possible climate change at the global and regional levels. There are four contributing areas to this research program: Climate and Hydrology, Atmospheric Chemistry and Carbon Cycle, Ecological Processes, and Human Interactions. The National Institute for Global and Environmental Change (NIGEC) is included within these four areas. The Environmental Processes subprogram is DOE's contribution to the U.S. Global Change Research Program that was codified by Congress in the Global Change Research Act of 1990.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Climate and Hydrology	$ 53,515	$ 51,804	$ 54,267	$+ 2,463	+ 4.8%
Atmospheric Chemistry and Carbon Cycle	27,317	29,032	27,164	- 1,868	- 6.4%
Ecological Processes	12,287	11,797	11,448	- 349	- 3.0%
Human Interactions	9,733	8,981	9,458	+ 477	+ 5.3%
Total, Environmental Processes	$ 102,852	$ 101,614	$ 102,337	$+ 723	+ 0.7%

III. Performance Summary:

FY 1995 Accomplishments:

o Second ARM Site established in Tropical Western Pacific. Started key measurements to determine how tropical clouds are mathematically represented in General Circulation Models (GCMs).

III. Performance Summary: ENVIRONMENTAL PROCESSES (Cont'd)

- o Parallel Ocean Program model delivered by CHAMMP to climate modeling community for coupling with atmospheric models. Continued ocean process modeling efforts to improve understanding of exchange of heat and carbon dioxide between the ocean and atmosphere.

- o Terrestrial Carbon Processes Research Program initiated to quantify fraction of fossil carbon dioxide taken up by terrestrial vegetation and to predict future uptake.

- o Initiated major field program at Cape Hatteras, NC, to probe changes in biological and geological properties at the ocean-land interface from increasing concentrations of atmospheric carbon dioxide.

- o Provided regional estimates of sensitivity of ecological systems to climatic and atmospheric changes as a foundation for science-based assessments of the consequences of global change.

- o Continued development of integrated assessment models and other means for assessing the potential environmental and economic consequences of natural and human-induced climatic and atmospheric changes.

- o Supported new graduate and post-doctoral fellowships to provide for the next generation of multidisciplinary research scientists.

- o Acquired and analyzed data to determine the possible impact of energy emissions on tropospheric and stratospheric ozone.

- o Radon program completed, and results synthesized to develop protocols for identifying areas with high risk potential for elevated indoor radon.

- o The Quantitative Links program was completed, delivering information for the ARM and other programs.

- o Funding in the amount of $2,183,000 and $110,000 has been transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned):

- o Complete the experiments at the Oklahoma ARM site that will solve the puzzle of anamalous short wave absorption by clouds.

- o Begin periodic Intensive Observational Periods (IOPs) at the ARM site in the Tropical Western Pacific to improve parameterization of clouds in climate models. Continue collaborations with Australia, Papua New Guinea, and Japan. Initiate preparations for third ARM site on the North Slope of Alaska.

III. Performance Summary: ENVIRONMENTAL PROCESSES (Cont'd)

- o Implement initial experiments with coupled climate system models on massively-parallel super-computers to capitalize on computational improvements. Execute multi-decade simulations of climate change to address century-scale climate prediction and evaluate estimates of model uncertainties to changes in atmospheric concentrations of greenhouse gases.

- o Continue experiments to quantify forest ecosystem responses to elevated carbon dioxide and climate variation.

- o Complete measurements of ocean carbon in the Indian Ocean as part of the global survey of inorganic carbon in the ocean to understand role of ocean in the uptake of atmospheric carbon dioxide.

- o Develop improved process models and methods for assessing regional consequences of atmospheric and climatic changes on ecological systems and human resources.

- o Evaluate success of global change fellowship program with respect to training of new scientists and the development of cross-disciplinary skills of the graduate- and postdoctoral fellows.

- o Participate in the North American Research Strategy for Tropospheric Ozone (NARSTO) Program, designed to quantify and characterize the scientific uncertainties of urban and rural smog and provide data for science-based air quality management decisions by Federal, state, and local authorities.

- o Field experiment of land-ocean research becomes fully operational and its completion results in determining if the coastal oceans are a source or sink for atmospheric carbon dioxide.

- o Initiate field experiments to determine the coupled effects of elevated carbon dioxide and ozone on growth and productivity of forests.

- o Funding in the amount of $1,526,000 and $123,000 has been budgeted for the SBIR and STTR programs, respectively.

FY 1997 Planned Accomplishments:

- o Establish third ARM Site on North Slope of Alaska and begin arctic data collection to support improvements in treatment of clouds and radiation in GCMs. Maintain full operation at the ARM sites in Oklahoma and the Tropical Western Pacific.

- o Include advanced understanding of how clouds affect atmospheric heating and cooling in the GCMs based on ARM data. Initiate the next step in the comparison of models by coupling with ocean models to enable the long-term climate predictions necessary for understanding global climate change.

III. Performance Summary: ENVIRONMENTAL PROCESSES (Cont'd)

- o Provide improved estimates of atmospheric carbon dioxide changes that result from fossil fuel combustion. Improve understanding of the terrestrial biosphere's role in the uptake of carbon dioxide (i.e., the carbon exchange between the atmosphere and forests).

- o Complete evaluation of data obtained in field campaign at land/ocean interface.

- o Synthesize initial results from experimental and observational studies to quantify responses of southern hardwood forest and arid land ecosystems to alterations in precipitation.

- o Initiate a Young Scientists Award Program to strengthen global change research infrastructure at universities and national laboratories.

- o Complete regional analysis to identify ecological systems most sensitive to climatic variation and change to provide improved assessments of consequences of climate change.

- o Funding in the amount of $2,126,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

Climate and Hydrology (+$2,463,000) - The Atmospheric Radiation Measurement (ARM) program will continue to develop and operate the planned ARM sites, including the second and third sites located in the Tropical Western Pacific and the North Slope of Alaska, respectively. Activities within CHAMMP, the UAV-ARM program, and relevant parts of NIGEC will proceed at levels appropriate to their scientific priorities and urgencies.

Atmospheric Chemistry and Carbon Cycle (-$1,868,000) - Activities within Marine Transport/Ocean Margins have focused on the role of coastal oceans as a source or sink for atmospheric carbon dioxide and the processes controlling the uptake, transport, and sequestration of carbon in the coastal ocean. Studies have included the use of biomarkers, measures of bacterial respiration, and studies of biogeochemical processes at the land/water interface. Research involving the development and application of such molecular and biological methods will be supported in the context of the synergistic and complementary research areas under the environmental remediation subprogram.

Ecological Processes (-$349,000) - Experimental and observational studies will continue at a reduced pace. The program scope is maintained.

Human Interactions (+$477,000) - Integrated assessment studies targeted at the science-based understanding of the implications of fundamental research in issues related to environmental processes will be strengthened. Newly initiated activities directed towards the inclusion and development of minority students in peer-reviewed research focused on environmental processes will be maintained.

ENVIRONMENTAL REMEDIATION
(Tabular dollars in thousands. Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The research is focused on the understanding of the fundamental physical, chemical, geological, and biological processes that must be marshaled for the development and advancement of new, effective, and efficient processes for the remediation and restoration of the Nation's nuclear weapons production sites. Priorities of this research include bioremediation, the development of the full capabilities of the Environmental Molecular Sciences Laboratory, and the joint scientific endeavors with the Office of Environmental Management. The subprogram also includes basic research in support of pollution prevention and sustainable technology development.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Terrestrial Transport	$ 18,220	$ 23,313	$ 29,053	$+ 5,740	+ 24.6%
Total, Environmental Remediation	$ 18,220	$ 23,313	$ 29,053	$+ 5,740	+ 24.6%

III. Performance Summary:

FY 1995 Accomplishments:

- o Expanded bioremediation research and initiated studies of the use of genetically engineered microorganisms (GEMs) for degrading contaminants, moving the research from the laboratory to a controlled field site at Oak Ridge National Laboratory.
- o Developed a 10-year plan for basic bioremediation research to clean sites fouled during nuclear weapons production (NABIR: Natural and Accelerated Bioremediation Research).
- o Funding in the amount of $353,000 and $17,000 has been transferred to the SBIR and STTR programs, respectively.

III. Performance Summary: ENVIRONMENTAL REMEDIATION (Cont'd)

FY 1996 Accomplishments (to date and planned):

o Initiate research activities identified in the 10-year plan on bioremediation, including establishment of an interagency advisory group.

o Link research on the physical, chemical, and geological studies of contaminant transport with related activities in the Office of Technology Development/Office of Environmental Management (OTD/EM) and in the Office of Basic Energy Sciences/Energy Research (BES/ER).

o Initiated pilot program focused on fundamental research needs identified by the Office of Environmental Management but, by virtue of the fundamental and basic nature, fall within the mission responsibility of the Office of Energy Research.

o Funding in the amount of $824,000 and $66,000 has been budgeted for the SBIR and STTR programs, respectively.

FY 1997 Planned Accomplishments:

o Complete genome sequence of three thermophilic microbes to identify and isolate genes and proteins that will enhance the bioremediation of mixed contaminants.

o Begin the long term research necessary to identify key microbial, biotransformation, and biogeochemical processes to enhance the utility of bioremediation and develop strategies to represent these processes in predictive models.

o Begin identification of the three field research centers proposed in the bioremediation plan; initiation of activities at the first center.

o Initiate Environmental Molecular Sciences Laboratory (EMSL) startup operations.

o Funding in the amount of $1,193,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

(+$5,740,000) - Research will seek to improve understanding of the potential of subsurface microorganisms for environmental bioremediation. With the establishment of the Environmental Molecular Sciences Laboratory, unified efforts within this subprogram will provide research directions that capitalize on the interdisciplinary nature of the fundamental science supporting environmental cleanup.

MEDICAL APPLICATIONS AND MEASUREMENT SCIENCE
(Tabular dollars in thousands. Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The medical applications programs support research to develop beneficial applications of nuclear and other energy-related technologies for medical diagnosis and treatment. The research develops applications of radiotracer agents in medical research using recent advances in instrumentation as well as in molecular and structural biology. A major emphasis is placed on non-invasive diagnostic tools, including imaging technologies such as positron emission tomography. The research in this activity is conducted in six specific areas: Radioisotope Development, Radiopharmaceuticals, Instrumentation, Clinical Feasibility, Boron Neutron Capture Therapy (BNCT), and Molecular Nuclear Medicine.

The measurement science program also focuses on research and development of new measurement technologies to meet the needs of the environmental and life sciences programs of the biological and environmental research programs and other departmental customers. Emphasis is placed on using the advanced technologies developed in the Department's National Laboratories for environmental and biomedical research. The dosimetry activity is devoted to providing fundamental understanding of interactions of radiation with matter needed to improve BNCT and other programs in medical applications and the life sciences.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Medical Applications	$ 47,285	$ 52,206	$ 36,720	$- 15,486	- 29.7%
Measurement Science	4,799	4,985	5,875	+ 890	+ 17.9%
Total, Medical Applications and Measurement Science	$ 52,084	$ 57,191	$ 42,595	$- 14,596	- 25.5%

III. Performance Summary: MEDICAL APPLICATIONS AND MEASUREMENT SCIENCE (Cont'd)

FY 1995 Accomplishments:

- o Initiated three human clinical trials at Brookhaven National Laboratory, New England Medical Center, and Ohio State University of the safety and efficacy of boron neutron capture therapy (BNCT) for treatment of glioblastoma brain cancer and melanoma skin cancer with new boron labeled drugs.

- o Inaugurated two research centers for the medical applications of advanced imaging technologies: a center for functional imaging at the Lawrence Berkeley National Laboratory for the study of human chemistry, physiology and disease; and a center for imaging neuroscience at Brookhaven National Laboratory for the study of neurological disorders and mental illnesses.

- o Initiated research on three-dimensional positron emission tomography at Lawrence Berkeley National Laboratory that will have the highest resolution and be the fastest system in the world, for improved diagnosis of brain diseases.

- o Completed initial collaborative projects between Centers of Excellence for Laser Applications in Medicine at Massachusetts General Hospital, Schepens Eye Research Institute, University of California at Irvine and the University of Texas, and DOE National Laboratories to develop laser technology for medical diagnosis and treatment such as burn treatment, laser surgery and cancer treatment.

- o Completed follow up and evaluation of the health status of 1,300 human research patients treated at the Lawrence Berkeley National Laboratory with charged-particle radiosurgery between 1954 and 1993 for selected brain disorders. Techniques and treatment strategies are being transferred to the Proton Irradiation Facility at Loma Linda University Medical Center.

- o Radiopharmaceutical research focused on targeting the multi-drug resistance gene.

- o Developed new approaches in genetic engineering and tumor biology that contribute to more efficient and selective cancer treatment options.

- o Received Research and Development magazine R&D 100 award for a fast and inexpensive test for polychlorinated biphenyls (PCBs) that enables rapid in-field testing for PCBs.

- o Completed research on instruments for the measurement of radiation and solicited research applications to investigate the chemical composition of living cells and to probe the subsurface environments.

III. Performance Summary: MEDICAL APPLICATIONS AND MEASUREMENT SCIENCE (Cont'd)

- o Initiated collaborative project with the National Science Foundation to develop instrumentation for ocean carbon measurements as part of the basic research program in instrumentation for measurement sciences.

- o Funding in the amount of $965,000 and $48,000 was transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned):

- o Complete a Phase I/II human clinical trial of boron neutron capture therapy at Brookhaven National Laboratory for treatment of glioblastoma using the recently developed boronophenylalanine-fructose complex as the boron delivery drug.

- o Use new radiotracers and imaging capabilities for neuroscience research and for diagnosing diseases and disorders of the brain and other organs.

- o Develop new diagnostic probes for detection of cancer using advanced molecular biology techniques.

- o Complete installation of a high-field, whole body magnetic resonance imaging system at the Brookhaven Imaging Center which, along with emission computed tomography instruments, provides complementary multiple imaging modalities for studies on the function of the human brain in normal, aging and diseased states, and following drug abuse.

- o Deploy new instrumentation for characterizing particulate matter in the oceans to determine the distribution and fate of carbon-containing matter in the global carbon cycle.

- o Complete development of new biosensors capable of measurements in individual biological cells that enable studies of disease processes.

- o Development of high resolution three-dimensional positron emission tomography at Lawrence Berkeley National Laboratory will continue.

- o Continue research into new concepts for imaging of effects of carcinogens on biological materials.

- o Initiate basic dosimetry research directed to improvement of Boron Neutron Capture Therapy and other health science programs of the Office.

III. Performance Summary: MEDICAL APPLICATIONS AND MEASUREMENT SCIENCE (Cont'd)

- o Funding for the Biomedical Research Foundation of Northwest Louisiana is provided to develop a research program on stroke and related diseases as included in Congressional direction.

- o Funding for the Oregon Health Sciences University is provided in support of networking infrastructure at the university and collaborations with related institutions, as included in Congressional direction.

- o Funding in the amount of $1,151,000 and $88,000 has been budgeted for the SBIR and STTR programs, respectively.

FY 1997 Planned Accomplishments:

- o Bring new radiopharmaceuticals with high specificity for particular cells into biological screening and preclinical studies in laboratory animals.

- o Strengthen computational modeling efforts in support of drug design for molecular nuclear medicine applications.

- o Complete a Phase I human clinical trial at Ohio State University of boron neutron capture therapy for treatment of glioblastoma using sodium borocaptate as the boron delivery drug; this compound has been widely used in Japan.

- o Collaborate with the National Cancer Institute in comparing boron neutron capture therapy with conventional modes of therapy.

- o Extend laser research to develop beneficial medical laser applications for diagnosis and therapy of cancer and other diseases. Complete a CRADA between Sandia National Laboratory and Massachusetts General Hospital on development of laser technology for diagnosis and treatment of burns, and transfer the technology to the private sector.

- o Continue development of information management systems for medical applications, leading to initial applications of genome sequencing in radiopharmaceutical development.

- o Continue development of three dimensional positron emission tomography and associated electronics and new crystal materials.

- o Complete development of a new mass spectrometer capable of characterizing contaminants in subsurface environments.

III. Performance Summary: MEDICAL APPLICATIONS AND MEASUREMENT SCIENCE (Cont'd)

- o Complete development of new laser based techniques for measurement of chemical carcinogens at subcellular level to enable studies of how a cell evolves from the normal to the cancerous state.

- o Continue program in dosimetry applied to BNCT.

- o Funding in the amount of $1,058,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

Medical Applications (-$15,486,000) - Congressionally directed projects included in FY 1996 are complete. Projects in radiopharmaceutical development using conventional antibody approaches will be terminated.

Measurement Science (+$890,000) - Support for the development and application of laser technologies developed by the National Laboratories will increase to couple these technologies more closely to medical applications of optical techniques.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH PROGRAM

RELATED CAPITAL FUNDING
(Tabular dollars in thousands. Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

Provides for the necessary capital equipment and general plant project needs to support the BER program. An ability to address health and environmental issues requires a continuing commitment to maintaining advanced instrumentation and facilities.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 24,834	$ 24,439	$ 23,675	$- 764	- 3.1%
General Plant Projects	4,217	3,613	4,837	+ 1,224	+ 33.9%
Facility Modifications and Improvements	0	0	1,500	+ 1,500	0%
Total, Facilities	$ 29,051	$ 28,052	$ 30,012	$+ 1,960	+ 7.0%

III. Performance Summary:

FY 1995 Accomplishments:

o Provided Capital Equipment (CE) funding in support of the research program.

o GPP funding provided for minor new construction, other capital alterations and additions, and for buildings and utility systems, to maintain the productivity and usefulness of Department-owned facilities and to meet its requirements for safe and reliable facilities operation.

III. Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

FY 1996 Accomplishments (to date and planned):

o Provide Capital Equipment (CE) funding in support of the research program.

o GPP funding for minor new construction, other capital alterations and additions, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

FY 1997 Planned Accomplishments:

o Provide Capital Equipment funding in support of the research program.

o GPP funding for minor new construction, other capital alterations and additions, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

o Facility modifications and improvements are necessary to ensure continued safe operation and reliability of reactors for boron neutron capture therapy. Additions and improvements to the radioisotope production laboratory at the Brookhaven Linac Isotope Producer (BLIP) facility are required to ensure a continuous and reliable supplies of accelerator produced radioisotopes for research. Modifications include additional state-of-the-art hot cells and an improved waste neutralizer/solidifier system.

Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $1,960,000 is related to the initiation of facility modification activities described above and the added responsibility of GPP and GPE funding for Oak Ridge Institute for Science and Education formerly provided by the Multiprogram Energy Laboratories - Facilities Support program.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH PROGRAM

CONSTRUCTION
(Tabular dollars in thousands. Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

Construction is needed to support the BER Research program. Experiments necessary to support basic research require that state-of-the-art facilities be built or existing facilities modified to meet unique research requirements.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Construction	$ 67,200	$ 62,595	$ 36,113	$- 26,482	- 42.3%
Total, Facilities	$ 67,200	$ 62,595	$ 36,113	$- 26,482	- 42.3%

III. Performance Summary:

FY 1995 Accomplishments:

- o Completed construction of laboratory/office complexes for visiting scientists at the National Synchrotron Light Source and the Stanford Synchrotron Radiation Laboratory (SSRL) to increase opportunities for scientists from universities, industry, and government to determine the structures of important proteins.
- o Continued construction of user center for structural biology at Advanced Light Source (ALS).
- o Continued construction of the Structural Biology Center at the Argonne National Laboratory (ANL).
- o Continued construction of the Environmental Molecular Sciences Laboratory (EMSL).
- o Completed upgrade of beam current, replaced the target assembly, and improved the hot cell shielding at the Brookhaven Linac Isotope Producer (BLIP).

III. Performance Summary: CONSTRUCTION (Cont'd)

o Continued construction of the Human Genome Laboratory at the Lawrence Berkeley National Laboratory (LBNL).

FY 1996 Accomplishments (to date and planned):

o Complete construction of the User Center for Structural Biology at the Advanced Light Source (ALS) and the Structural Biology Center at the Argonne National Laboratory.

o Continue construction of the EMSL.

o Continue construction of the Human Genome Laboratory at LBNL.

FY 1997 Planned Accomplishments:

o Complete construction of the EMSL.

o Complete construction of the Human Genome Laboratory at LBNL.

Explanation of Funding Changes FY 1996 to FY 1997:

The decrease of $26,482,000 in Construction is due to the completion of construction activities at the two Structural Biology Centers, and the final year construction costs for the EMSL and the Human Genome Laboratory.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH
CAPITAL OPERATING EXPENSES AND CONSTRUCTION SUMMARY
(Dollars in thousands)

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Operating Expenses					
General Plant Projects (total)	$4,217	$3,613	$4,837	$+1,224	+33.9%
Facility Modifications and Improvements (total)	0	0	1,500	+1,500	--
Capital Equipment (total)	24,834	24,439	23,675	-764	-3.1%

Construction Project Summary (both Operating and Construction Funded)

Project No.	Project Title	TEC	Previous Appropriated	FY 1995 Appropriated	FY 1996 Appropriated	FY 1997 Request	Unapprop. Balance
94-E-339	Human Genome Laboratory, LBNL	$24,634	$2,134	$15,800	$5,700	$1,000	$0
94-E-338	Structural Biology Center, ANL	14,876	3,881	6,700	4,295	0	0
94-E-337	ALS Structural Biology Support Facilities, LBNL	7,882	582	4,700	2,600	0	0
91-EM-10	Environmental Molecular Sciences Lab., PNL	207,900	82,787	40,000	50,000	35,113	0
Total Biological and Environmental Research		$XXXXX	$89,384	$67,200	$62,595	$36,113	$0

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ENERGY RESEARCH

PROJECT DATA SHEETS

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Biological and Environmental Research

1. Title and location of project: Human Genome Laboratory
Lawrence Berkeley National Laboratory (LBNL)
Berkeley, California

2a. Project No. 94-E-339
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1994

3b. A-E Work (Title I & II) Duration: 15 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $24,634
Total Project Cost (TPC) -- $24,934

4a. Date Physical Construction Starts: 4th Qtr. FY 1995

4b. Date Construction Ends: 4th Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $24,634
TPC -- $24,934

7. Financial Schedule: (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1994	$ 2,200	-66 a/	$ 2,134	$ 518
1995	15,800	0	15,800	2,274
1996	5,700	0	5,700	9,850
1997	1,000	0	1,000	9,296
1998	0	0	0	2,696

a/ Reflects reduction of funding for the FY 1994 rescission.

1. Title and location of project:	Human Genome Laboratory Lawrence Berkeley National Laboratory (LBNL) Berkeley, California	2a. Project No. 94-E-339 2b. Construction Funded

8. Project Description, Justification and Scope

The proposed Human Genome Laboratory will be a three-story building with 41,000 gross square feet and 24,050 net square feet of assignable laboratory and office space. It will be located at the Lawrence Berkeley National Laboratory (LBNL) near the existing Biomedical Laboratory and the Cell Culture Laboratory.

The project was designed and sited in general conformance with the Long Range Development Plan approved by the U.C. Board of Regents in 1987 and with the LBNL Site Development Plan approved by DOE in 1991. The conceptual design documents and cost estimate for the project were prepared from design criteria submitted by the Life Sciences Directorate and Human Genome Center staff.

The structure will be comprised of a braced steel frame with concrete floors and roof supported on metal deck, and exterior glass fiber reinforced concrete panel walls. An HVAC system with 100% outside air supply will be provided. The building will be protected by a fire sprinkler system connected to the LBNL alarm system. Fire alarm stations will be provided on each floor with smoke detectors in all corridors and other areas where required. All utilities are available at the site except for a required substation to step down the available 12 kV from a new LBNL substation. Fifty foot-candle lighting in laboratories will be provided by fluorescent fixtures with high frequency electronic ballasts. Access to the site is available via existing Cyclotron Road. Parking will be provided adjacent to the front entry and in the new 20 car parking area behind the Biomedical Laboratory.

Functionally, the Human Genome Laboratory is designed to provide a state-of-the-art facility for molecular genetics research. Each floor will house open laboratory areas furnished with modular wet benches and desks for maximum flexibility. This design will accommodate future modifications required by scientific investigations or changes in program.

Adjacent to laboratory areas will be a core of support facilities including cold rooms, dark rooms, cell tissue rooms, autoclaves and laboratories for robotics, instrumentation and computation. Laboratory offices and secretarial stations will be comprised of demountable open space workstations. To facilitate the interaction between researchers, a small shared conference room will be provided on each floor and a large conference room seating 25-30 people and combined with library is located on the first level.

The building is designed in compliance with the requirements for H-7 occupancy as defined by the Uniform Building Code. All code stipulated provisions for handling and storage of hazardous materials are incorporated.

1.	Title and Location of Project:	Human Genome Laboratory Lawrence Berkeley National Laboratory (LBNL) Berkeley, California	2a. Project No. 94-E-339 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

These new government-owned facilities will be located on land owned by the University of California and will serve or be operated in conjunction with other government-owned facilities at the Lawrence Berkeley National Laboratory.

The Human Genome Laboratory at LBNL will support the Department of Energy's program to develop and apply the powerful tools of molecular genetics towards understanding the health and environmental impacts of current and proposed energy technologies. Research conducted at the Laboratory will provide a fundamental understanding of the structure and function of the human genome--the genetic basis of susceptibility to disease causing agents--for use in defining risk and providing health protection. To achieve these objectives will require the Human Genome Laboratory to be directed towards the goals of identifying the variability in genetic information encoded in deoxyribonucleic acid (DNA) and mapping its arrangement on the 23 pairs of human chromosomes. The long-term goal of the national program is to support the determination of the sequence--and variation--of the approximately three billion DNA bases that comprise the total chromosome material of human cells.

The Human Genome Laboratory requires an essential core of laboratories for multidisciplinary teams of technical staff that utilize a common pool of instrumentation and cell culture facilities. This building will be adjacent to existing cell biology research facilities (the Biomedical Laboratory Building and the Cell Culture Laboratory) that are used for related research on gene expression and physiology. This and other light laboratory space at Lawrence Berkeley National Laboratory is now fully utilized. The Human Genome Laboratory is planned for a staff of 92, including senior scientists, postdoctoral associates, graduate students, technicians and support personnel.

Research at the Human Genome Laboratory will directly support the needs of the DOE Biological and Environmental Research program for gene mapping and DNA base sequencing and its related efforts to improve analytical methods, instrumentation and information management. Program activities conducted in the laboratory building will facilitate and improve mapping of selected human chromosome fragments; establish selected libraries of DNA nucleotide bases (complementing other libraries of cloned genes); conduct pilot nucleotide base sequencing of sections of continuous megabase-length DNA; develop data banks and analysis software; improve and develop new automation of mapping and sequencing techniques; and develop innovative methods for detecting gene fragments, sequences and variation. An important corollary activity is to provide requested services to universities and industry, including cloned DNA material, cell lines, and data. The program will contribute information to national gene banks and computational centers and utilize chromosome material from sorting centers at other national laboratories.

1. Title and Location of Project:	Human Genome Laboratory Lawrence Berkeley National Laboratory (LBNL) Berkeley, California	2a. Project No. 94-E-339 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The Human Genome Laboratory will provide light laboratories, equipment rooms, and office space required for the conduct of the integrated mapping, sequencing and analytical support programs. These needs include, for example, biochemistry bench space, controlled environmental chambers, tissue culture facilities and fermenters, and necessary instrumentation areas and utilities for DNA sequencers, gel scanners for separations, oligonucleotide synthesizers to prime fragment analysis, radiotracer counters, and basic preparative and analytical equipment. Special requirements include the control of biological materials and chemicals through laminar flow hoods and non-vented cabinets. Common ducting will be used for all chemical fume hoods and laminar flow cabinets.

The $1,000,000 budgeted for the Human Genome Laboratory in FY 1997 is for the purchase of equipment needed to begin operation of the laboratory, including chemical hoods, sterilizers, DNA sequencers, and robots.

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and management costs		$ 2,330
1. Engineering design and inspection at 16 percent of construction costs	$ 2,330	
b. Land and land rights		0
c. Construction Costs		14,474
1. Improvements to Land	$ 1,680	
2. Buildings (37,000 GSF at approximately $298/sq. ft.)	11,054	
3. Special Facilities	1,520	
4. Utilities	220	
5. Project Management		1,020
d. Standard Equipment		3,080
e. Relocations		300
Subtotal		$21,204
f. Contingencies at approximately 16 percent of above costs		3,430
Total line item cost		$24,634

a/ Construction costs have been escalated at 2.1% for FY 1992; 3.4% for FY 1993; 4.3% for FY 1994; 4.5% for FY 1995 and 4.7% for FY 1996, compounded to midpoint of construction, August 1996.

1. Title and Location of Project: Human Genome Laboratory
Lawrence Berkeley National Laboratory (LBNL)
Berkeley, California

2a. Project No. 94-E-339
2b. Construction Funded

10. Method of Performance

Design will be accomplished by means of a negotiated architect-engineer subcontract. Construction and procurement will be accomplished by fixed price subcontract awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs							
1. Total facility costs							
(a) Line item	$ 0	$ 518	$ 2,274	$ 9,850	$ 9,296	$2,696	$24,634
2. Other project costs							
(a) Conceptual design costs	$ 70	$ 0	$ 0	$ 0	$ 0	$ 0	$ 70
(b) Environmental and safety documentation costs	100	130	0	0	0	0	230
Total project costs (TPC)	$ 170	$ 648	$ 2,274	$ 9,850	$ 9,296	$2,696	$24,934

b. Related annual funding requirements in FY 1998 dollars

1. Facility operating costs	$ 470
2. Programmatic operating expenses for research	12,200
3. Capital equipment required for programmatic research	530
Total related annual costs in FY 1998 dollars	$13,200

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1. Title and Location of Project:	Human Genome Laboratory Lawrence Berkeley National Laboratory (LBNL) Berkeley, California	2a. Project No. 94-E-339 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs

The major elements of the Human Genome Laboratory have been described in Item 8.

The construction funding profile has been determined after analysis and review of a comprehensive project schedule, taking into account the earliest anticipated receipt of fiscal year funding, A/E selection time frame, general weather conditions for both site work and structure generally encountered in the San Francisco Bay area.

2. Other project costs

(a) Conceptual design costs--Includes costs for preparation of conceptual design report (CDR) by LBNL personnel.

(b) Environmental (NEPA) and Safety (SAR) documentation costs--Includes costs for environmental evaluation and, if required, preparation of an Environmental Assessment (EA). Safety documentation includes preparation of preliminary safety analysis documents (PSAD).

b. Related annual costs

1. Facility operating costs

Includes estimated cost for maintenance, custodial service, and utilities such as light, heat and water.

2. Programmatic operating expenses for research

The annual costs of the scientific program are increased progressively to assemble a high-quality research staff for the Human Genome Laboratory consistent with the national program. Funding in the early years of the project will attract senior scientists to lead the new scientific programs described in Item 9. These researchers can be housed initially in leased facilities if necessary until the Human Genome Laboratory is completed. The programs will expand to include the full complement of scientists and technicians upon project completion.

1. Title and Location of Project:	Human Genome Laboratory Lawrence Berkeley National Laboratory (LBNL) Berkeley, California	2a. Project No. 94-E-339 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (Continued)

3. Capital equipment required for programmatic research
   The capital equipment needs related to this research staffing profile reflect program requirements and experience that equipment items will be needed at the level of approximately 20% of the operating program budget. These amounts are augmented in the initial years for specialized capital equipment start up costs.

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Biological and Environmental Research

1. Title and Location of Project:	Environmental and Molecular Sciences Laboratory Pacific Northwest National Laboratory Richland, Washington	2a. Project No. 91-EM-100 2b. Construction Funded
3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1991 3b. A-E Work (Titles I & II) Duration: 13 months		5. Previous Cost Estimate: Total Estimated Cost (TEC) -- $196,300 Total Project Cost (TPC) -- $217,800
4a. Date Physical Construction Starts: 2nd Qtr. FY 1994 4b. Date Construction Ends: 4th Qtr. FY 1997		6. Current Cost Estimate: TEC -- $207,900 TPC -- $229,900

7. Financial Schedule

Fiscal Year	Appropriation	a/	Adjustments		Obligations	a/	Costs
Previous Years	$ 83,800	b/	$-1,013	c/	$ 82,787	b/	$70,400
1995	40,000		0		40,000		43,400
1996	50,000		0		50,000		53,600
1997	35,113		0		35,113		36,700
1998	0		0		0		3,800

a/ Funds provided by the Defense Environmental Restoration and Waste Management program for FY 1991 through FY 1993.
b/ Excludes $20,000,000 provided by the Department of Defense per the Defense Appropriation Act of FY 1991.
c/ Adjustments reflect a $30,000 general reduction for FY 1991 and a rescission of $983,000 for FY 1994..

1. Title and Location of Project:	Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory Richland, Washington	2a. Project No. 91-EM-100 2b. Construction Funded

8. Project Description, Justification and Scope

The Environmental Molecular Sciences Laboratory (EMSL) project will be a laboratory facility with an initial complement of laboratory equipment. EMSL will be an extension of the current environmental mission at the Hanford site, providing a focused laboratory capability to develop technology solutions to Hanford site-specific environmental restoration and waste management problems as well as the related needs at other departmental facilities. The new facility will be located at the north end of a technology corridor at the Hanford site, facilitating access to existing radiological facilities (hot cells and laboratories) and enabling interactions with both other scientists at the Pacific Northwest National Laboratory and scientists and engineers working at the nuclear processing and storage facilities. This strategic location will facilitate linking Hanford problems to technology needs and facility requirements as well as provide dedicated laboratory capability at the Hanford Site for the full duration of site environmental restoration efforts.

The facility size is approximately 200,000 square feet, housing 209 permanent scientific and support staff, and 60 visiting scientists. Key facility elements include laboratories, offices, conference rooms, computer and graphics rooms; library, kitchen, support shops, and a seminar area. Facility design will support state-of-the-art laboratory equipment, provide flexibility to accommodate future equipment, and support educational and technology transfer initiatives.

Laboratory equipment consists of the research equipment and computer systems required to achieve planned research and technology development objec nt objectives. Key laboratory equipment includes molecular-level surface chemistry equipment, laser-based spectroscopy equipment, advanced processing equipment, sensor development and evaluation equipment, material testing and evaluation equipment, Ultra High Field Nuclear Magnetic Resonance System, advanced mass spectrometers, data base computer, high performance computer and an advanced computer information system.

FY 1997 funds requested will be used for project management and support, continued construction of the laboratory facility, and continued acquisition of research and computer equipment.

1. Title and Location of Project:	Environmental Molecular Sciences Laboratory Pacific Northwest National Laboratory Richland, Washington	2a. Project No. 91-EM-100 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The purpose of the Environmental Molecular Science Laboratory (EMSL) is to provide the fundamental science that will lead to new technology for current and future Hanford site-specific environmental restoration and waste management problems, as well as for those at other sites contaminated during nuclear weapons production. Mission need for EMSL is based on Hanford site-specific technology development needs defined in detailed technology logic diagrams. These logic diagrams link Hanford site-specific problems to technology needs and facility requirements; define the role of existing, modified, and new facilities at the Hanford site, including EMSL; and provide a basis for defining and integrating EM technology development needs on a national scale.

The EMSL will focus on a wide variety of experimental and theoretical capabilities in an interdisciplinary culture that will: 1) develop the scientific basis to predict contaminant transport and transformation; 2) advance materials technologies for measurement, containment, and separation of wastes; 3) increase use of biosystems for remediation and knowledge of health effects due to toxic substances; 4) facilitate training, education, and technology transfer initiatives; and 5) achieve transfer of technology through industry involvement.

The $35,113,000 budgeted to complete the project in FY 1997 will be used for the purchase of final research and computer equipment, installation and testing of research and computer equipment, completion of the facility, and research and computer equipment, readiness assessment, and continuating and completion of startup operations including initial staffing, personnel training, personnel moves and occupancy of the facility, stocking of initial consumables for full operation, and other related startup operations activities.

1. Title and Location of Project:	Environmental Molecular Sciences Laboratory Pacific Northwest National Laboratory Richland, Washington	2a. Project No. 91-EM-100 2b. Construction Funded

9. Details of Cost Estimate a/	Item Costs	Total Cost
a. Design and cost management		$ 52,670
1. Facility engineering, design, and inspection at approximately 15.5 percent of construction costs items c and d	$ 8,320	
2. Research & computer equipment engineering, design and inspection	39,050	
3. Construction management at approximately 9.9 percent of items c & d	5,300	
b. Land and land rights		0
c. Construction costs		51,390
1. Improvements to land	2,880	
2. Buildings ($208.63/sq ft based on 202,365 gross sq ft)	42,220	
3. Utilities (including water electrical power and sewers)	1,250	
4. Special facilities	5,040	
d. Standard equipment (furnishing and standard lab and shop equipment)		2,330
e. Computer equipment (see below for details)		20,360
f. Research equipment		47,390
g. Project management		19,420
Subtotal b/		193,560
h. Contingency at approximately 7.4 percent of all above costs		14,340
Total line item cost		$207,900

a/ This estimate is based on the most recent cost estimate dated February 1994.

b/ Includes escalation applied to facility construction at the rates of 3.7% (FY 1994), 3.8% (FY 1995), 3.8% (FY 1996), and 4.3% (FY 1997) to midpoint of construction and procurement.

1. Title and Location of Project: Environmental Molecular Sciences Laboratory
Pacific Northwest National Laboratory
Richland, Washington

2a. Project No. 91-EM-100
2b. Construction Funded

9. Details of Cost Estimate (Continued)

Item e. Computer Equipment Details	Qty	Unit Cost	Total
High Performance Final Production Model Computer System	1	$ 12,100	$ 12,100
High Performance Research Prototype Computer System	1	1,840	1,840
Data Base/Archive Final Production Model Computer System	1	3,440	3,440
Items with Unit Cost Less than $1,000K (e.g., workstations, applications software, printers, workstation upgrades)	-	-	2,490
Operating Software	-	-	460
Installation Cost for Above Hardware	-	-	30
Total			$ 20,360

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1. Title and Location of Project: Environmental Molecular Sciences Laboratory
Pacific Northwest National Laboratory
Richland, Washington

2a. Project No. 91-EM-100
2b. Construction Funded

10. Method of Performance

Conventional facility design and inspection will be completed under a negotiated architect-engineer (AE) contract. Facility construction and procurement will be accomplished by fixed-price contracts awarded on the basis of competitive bidding. Research equipment and computers will be procured on a competitive bid basis by PNNL. However, approximately 10 percent of the research and computer equipment does not exist in the current commercial market and will be provided by PNNL.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1994	FY 1995	FY 1996	FY 1997	TOTAL
a. Total project costs						
1. Total facility costs						
(a) Construction line item	$17,600	$26,282	$48,341	$68,200	$47,477	$207,900
(b) PE&D	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
(d) Non-Federal Contribution	0	0	0	0	0	0
Total Funding Cost	17,600	26,282	48,341	68,200	47,477	207,900
2. Other project costs						
(a) R&D required for construction	4,660	1,090	1,200	2,160	300	9,410
(b) Conceptual design costs	1,540	0	0	0	0	1,540
(c) Other project related costs	200	410	500	840	4,300	6,250
(d) Capital equipment	2,320	2,280	200	0	0	4,800
Total other project cost	8,720	3,780	1,900	3,000	4,600	22,000
Total project costs (TPC)	$26,320	$30,062	$50,241	$71,200	$52,077	$229,900

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1. Title and Location of Project:	Environmental Molecular Sciences Laboratory Pacific Northwest National Laboratory Richland, Washington	2a. Project No. 91-EM-100 2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements (Continued)

b.	Related annual funding (Estimated Life of Facility: 40 years) a/	
1.	Facility operating costs	$ 28,000
2.	Programmatic costs directly related to the facility	35,000
3.	Capital equipment required to maintain state-of-the-art capability	2,000
4.	GPP or other construction related to programmatic effort in the facility	500
	Total related annual costs	$ 65,500

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   - (a) Construction line item -- Includes estimated cost for conventional facility design and construction, initial complement of research equipment and computers, and project management -- $207,900,000
   - (b) Operating Expense Funded Equipment -- None
   - (c) Inventories -- Inventories necessary to put the facility into use are included in operating costs.
   - (d) Non-Federal Contribution -- None.
2. Other project costs
   - (a) R&D necessary to complete construction -- Includes the conceptual design and prototype development of specific items of the research and computer equipment required to permit specification of the final equipment to be procured and installed in the EMSL -- $9,410,000
   - (b) Conceptual design was completed during FY 1988 and revised in FY 1989 to incorporate DOE comments. An alternate design was developed during FY 1990 for a total of -- $1,540,000
   - (c) Other project related costs -- Includes the estimated operating contractor costs associated with the construction line item for the following: (a) operational readiness review, (b) relocation of R&D equipment, and (c) software required for fully functional facility computer system -- $6,250,000
   - (d) Programmatic capital equipment includes research and computer equipment necessary for R&D required for construction -- $4,800,000

a/ Estimated costs in thousands escalated to FY 1997 dollars.

1. Title and Location of Project:	Environmental Molecular Sciences Laboratory Pacific Northwest National Laboratory Richland, Washington	2a. Project No. 91-EM-100 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (Continued)

b. Other related annual costs

Annual related funding requirements will vary as research and operations are implemented, the new facility is occupied at the end of FY 1996, and steady-state operation is attained in FY 1998. The estimated total related funding requirements are identified in Section 12.B and discussed below:

1. Facility operating costs -- The estimated annual facility operating costs include all personnel, materials, and resources required to support operation of a high technology DOE user facility. The annual facility operating estimate is comprised of the following expense elements:

Utilities and building maintenance a/

ADP operations and upkeep:

Maintenance contracts (approximately 10 percent of capital costs)	$ 4,000
Staff operations/support	9,000
Materials and supplies	1,000
Subtotal ADP operations and upkeep	14,000

a/ Utilities and building maintenance estimated cost is $3,000,000. This is an indirect cost recovered via a Buildings & Utility (B&U) overhead applied to all PNNL staff working in EMSL and is included in programmatic and facility operating costs.

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12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (Continued)

Research equipment operations and upkeep:

Maintenance contracts (approximately 10 percent of capital costs)	7,000
Staff operations/support	4,000
Materials and supplies	3,000
Subtotal research equipment operations and upkeep	14,000
Total Facility Operating Costs	$28,000

2. Programmatic research costs directly related to the facility -- The estimated programmatic operating costs include all personnel, materials, capital equipment and resources required to perform environmental and molecular sciences research for the following customers; DOE Office of Energy Research, DOE Office of Environmental Management, other DOE offices and other federal agencies, and private industry -- total $35,000,000.

3. Capital equipment required to maintain state-of-the-art capability facility -- To maintain viable research programs, it will be necessary to update research equipment and computers to keep pace with the rapid change of technology in these areas. This estimate includes costs to maintain programmatic related research equipment and computers at state-of-the-art level - $2,000,000.

4. GPP or other construction related to programmatic effort -- It is expected that alterations will be required beginning in FY 1997. This estimate is approximately 1% of the initial facility cost and will be required to make facility modifications to accommodate specific user experiments, relocate and/or modify existing research equipment and install new latest generation research equipment -- $500,000.

FUSION ENERGY SCIENCES

PROGRAM MISSION

The Fusion Energy Sciences program is undergoing a major change following guidance from Congress on budget constraints and program focus. Based on the recommendations of the Fusion Energy Advisory Committee in its report on "A Restructured Fusion Energy Sciences Program" (January 1996), the program is being rapidly restructured to focus on the scientific foundations which underpin the fusion process. The Department has accepted the major recommendations of the FEAC report, although the full $275,000,000 program recommended by the Committee could not be provided within constrained budgets. The new mission of the Fusion Energy Sciences Program is to:

"Advance plasma science, fusion science, and fusion technology -- the knowledge base needed for an economically and environmentally attractive fusion energy source."

The Department's intent is to establish the scientific knowledge base from which a fusion energy technology development program could be undertaken, when appropriate. In pursuing this mission, the fusion program will also foster the advancement of basic plasma science and associated technologies, which have wide applications to other fields of science and to industry.

The policy GOALS of the FUSION ENERGY SCIENCES program are to:

Advance plasma science in pursuit of national science and technology goals

Develop fusion science, technology, and plasma confinement innovations as the central theme of the domestic program

Pursue fusion energy science and technology as a partner in the international effort

PROGRAM MISSION - FUSION ENERGY SCIENCES (Cont'd)

The OBJECTIVES related to these goals are:

1. Advance Plasma Science

The Fusion Energy Sciences program will assume a leadership role within DOE and among other parts of the government in coordinating and strengthening scientific research efforts in basic plasma science. It will build and strengthen this segment of the program to an increased level.

2. Pursue Fusion Science and Technology Through Innovation

The program will maintain and strengthen fusion science core research activities with a focus on innovation in both tokamaks and alternative concepts. The unique science associated with confining ionized gases at stellar temperatures presents a complex range of theoretical, computational, and experimental challenges which require specialized facilities for their resolution. Existing experimental facilities will be used to maximum advantage in carrying out fusion science research efforts; older facilities will be phased out to free up resources for exploration of new scientific areas. Research on enabling technologies such as heating and fueling systems is an integral part of advancing fusion science. Innovation in both science and enabling technologies will be emphasized as the most cost-effective means to achieve the long range goal of developing a practical energy source. Additional cost-effectiveness will be derived from continued and expanded use of international collaboration in virtually all of these technical efforts.

3. Maintain a Partnership Role in International Fusion Energy Development

International collaboration is now focused on the scientific basis, technology development and engineering design necessary to construct a burning plasma experiment, ITER, whose ultimate objective is to demonstrate the scientific and technological feasibility of fusion energy. Within the restructured program, we will meet our commitment to the successful completion of the ITER Engineering Design Activities in July 1998. The Department intends to maintain the option of participation in construction in a way consistent with U.S. program needs and financial limitations. Consequently, the Department is initiating an interagency process seeking government authorization to enter pre-negotiations, non-committal discussions with the other ITER Parties called Explorations on whether acceptable construction arrangements could be envisioned. As part of this approach, given the financial limitations, the Department will not seek to be the host of the ITER facility.

Research on key technologies, such as radiation resistant, low-activation materials, is central to fusion's ultimate environmental and economic attractiveness as an energy source, and is being pursued in collaboration with our international partners.

PROGRAM MISSION - FUSION ENERGY SCIENCES (Cont'd)

PERFORMANCE MEASURES:

The performance measures for a scientific program are primarily qualitative rather than quantitative. The scientific excellence is continually assessed by expert panels, by peer reviews, by publication in scientific journals, and by presentations in international meetings and workshops. Specific performance measures for FY 1997 are:

1. Establish a Basic Plasma Science program as part of a multi-agency effort aimed at support of fundamental science issues associated with the plasma state of matter.

2. Assess scientific progress on the Tokamak Fusion Test Reactor to determine whether to continue the experiments on enhanced energy confinement through FY 1997 or whether to stop operations and begin preparing for decommissioning.

3. Complete and review jointly with our international partners the ITER Detailed Design Report, including cost estimate and safety assessment.

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SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

1. The world's first opportunity to study the detailed science associated with the production of fusion power has occurred over the last year on the Tokamak Fusion Test Reactor at Princeton. This device has achieved over 10,000,000 watts in a one second pulse of fusion power and provided numerous refined measurements of the fusion heating process. Also, unique diagnostic probes and improved theoretical analyses have contributed to much improved performance of the tokamak facilities needed for high temperature plasma experiments. Recent experimental results on TFTR and DIII-D have shown how to reduce the loss of plasma energy and particles to levels previously thought unattainable. These results continue to demonstrate the progress of scientific understanding towards the ultimate objective of developing simpler, more economical fusion power systems.

2. In response to FY 1996 budget reductions by Congress, the design of the Tokamak Physics Experiment was suspended and the project was terminated. Planning for a demonstration power plant has been eliminated. Also, the level of U.S. support for the ITER Engineering Design Activities (EDA) was restructured in consultation with our partners and the Director. Given congressional guidance that future funding will also be constrained, it is clear that any potential role for the U.S. in the future construction and operation of ITER would have to be at a modest level. The initial response from the other ITER parties in this new situation is aimed at finding a constructive, mutually beneficial approach to inclusion of the United States in future construction and operation.

PROGRAM MISSION - FUSION ENERGY SCIENCES (Cont'd)

3. An initiative in basic plasma science is also a significant shift for the program and opens the way for support of a broader research program that will support not only fusion but other elements of the Department's energy and defense missions.

4. The subcommittee, again through FEAC, will also recommend a strategy for increasing the U.S. effort in alternative confinement concept research. This budget includes funds for an innovative new spherical tokamak experiment as a new thrust in this area.

5. As part of the fusion program restructuring, the research efforts on TFTR will be focused on completing the scientific objectives uniquely attainable in that device before shutting down in order to permit increased efforts on tokamak improvements and alternative concepts using other facilities.

6. The Scientific Issues Subcommittee of the FEAC will play a major role in the restructuring of the program. Having identified TFTR as the first of the major facilities to be phased out, this subcommittee, through FEAC, will also recommend how to make the best scientific use of the major tokamaks in FY 1997. It will also review the work in progress at TFTR in mid-FY 1997 to help the Department decide whether to continue the planned experiments through the rest of the year, into FY 1998 at the latest, or whether to stop scientific operation in mid-year and use the remaining FY 1997 TFTR resources to prepare for decommissioning.

7. Funding for the support for the National Energy Research Supercomputer Center has been transferred to the new Computational and Technology Research Program.

FUSION ENERGY SCIENCES

PROGRAM FUNDING PROFILE

(Dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Research					
Fusion and Plasma Science	$182,542	$149,240	-$7,740 a/	$141,500	$160,333
Fusion Technologies	137,651	82,977	0	82,977	83,980
Program Direction	0	9,010	-9010 b/	0	0
Related Capital Funding	13,099	2,917	0	2,917	11,287
Subtotal Research	333,292 c/	244,144	-16,750	227,394 c/	255,600 c/
Construction	0	0	0	0	0
Subtotal, Fusion Energy Sciences	333,292	244,144	-16,750	227,394	255,600
Adjustment	-1,670 d/	0	0	0	0
Total, Fusion Energy Sciences	$331,622 e/	$244,144	-$16,750	$227,394	$255,600

a/ Comparability transfer to Computational and Technology Research.

b/ Comparability transfer to Energy Research Energy Supply, Research and Development Program Direction.

c/ Program Direction funds in the amount of $9,400,000 in FY 1995, $9,010,000 in FY 1996 and $8,400,000 in FY 1997 are budgeted in the Energy Research Energy Supply, Research and Development Program Direction program.

d/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program on a comparable basis. The total general reduction is applied at the appropriation level.

e/ Excludes $6,848,000 which has been transferred to the SBIR program and $342,000 which has been transferred to the STTR program.

Public Law Authorization:
Pub. Law 95-91, DOE Organization Act (1977)

FUSION ENERGY SCIENCES
(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Albuquerque Operations Office					
Los Alamos National Laboratory	$7,150	$4,297	$0	$4,297	$3,715
Sandia National Laboratories	8,208	5,723	0	5,723	5,560
Chicago Operations Office					
Argonne National Laboratory	7,743	5,025	0	5,025	4,070
Brookhaven National Laboratory	83	97	0	97	97
Princeton Plasma Physics Laboratory	118,726	60,431	0	60,431	67,810
Idaho Operations Office					
Idaho National Engineering Laboratory	3,223	2,732	0	2,732	2,323
Oakland Operations Office					
Lawrence Berkeley National Laboratory	6,066	5,080	0	5,080	5,305
Lawrence Livermore National Laboratory	16,162	17,133	-7,740	9,393	8,659
Stanford Linear Accelerator Center	50	50	0	50	50
Oak Ridge Operations Office					
Oak Ridge Institute for Science & Education	1,100	1,000	0	1,000	0
Oak Ridge National Laboratory	27,863	19,477	0	19,477	19,300
Continuous Electron Beam Accelerator Facility	0	5	0	5	0
Richland Operations Office					
Pacific Northwest Laboratory	2,733	1,592	0	1,592	1,730
Savannah River Operations Office					
Savannah River Tech Center	378	282	0	282	400
All Other Sites	133,807	121,220	-9,010	112,210	136,581
Subtotal	333,292	244,144	-16,750	227,394	255,600
Adjustment	-1,670 a/	0	0	0	0
TOTAL	$331,622	$244,144	-$16,750	$227,394	$255,600

a/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program on a comparable basis. The total general reduction is applied at the appropriation level.

FUSION ENERGY SCIENCES
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

	Direct Funding:	FY 1995 Comparable	FY 1995 Non.-Comp.	FY 1996 Comparable	FY 1996 Non-Comp.	FY 1997
	Personnel compensation:					
11.1	Full-time permanent		$5,189		$5,812	$5,248
11.3	Other than full-time permanent		39		95	97
11.5	Other personnel compensation		194		266	292
11.8	Special personal services payments		0		0	0
11.9	Total personnel compensation	0	5,422	0	6,173	5,637
12.1	Civilian personnel benefits		878		1,334	1,305
13.0	Benefits for former personnel		126		200	280
21.0	Travel and transportation of persons		419		510	495
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services	0	1,835	0	1,340	514
25.2	Other services	0	179	0	734	369
25.3	Purchases of goods and services from Government accounts					
25.4	Operation and maintenance of facilities	190,651	200,351	112,144	119,884	111,869
25.5	Research and development contracts	66,373	66,373	65,196	65,196	78,944
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment	11,069	11,069	1,950	1,950	10,267
32.0	Land and structures	1,913	1,913	1,013	1,013	1,000
41.0	Grants, subsidies and contributions	61,041	61,041	47,412	47,412	44,870
99.0	Subtotal, obligations	331,047	349,608	227,715	245,746	255,600
	Reimbursable Obligations		-		-	
99.9	Total Obligations	331,047	349,606	227,715	245,746	255,600
	Recovery of prior year obligations	-78	-78	-47	-47	
	Unobligated balance avail, start of year	-57	-1,297	-274	-1,555	
	Unobligated balance avail, end of year	710	1,991			
	Budget Authority	$331,622	$350,222	$227,394	$244,144	$255,600

Fusion and Plasma Science
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The mission of the Fusion and Plasma Science subprogram is to support fundamental research in plasma physics and to advance the knowledge base in fusion science, especially in the high-leverage areas where the U.S. retains a strong leadership role, such as plasma theory and computation, concept innovation, and plasma diagnostics.

Plasma physics is the study of the behavior of ionized gases -- ranging from fluorescent lights to stars -- that make up 99% of the known universe. It contributes not only to fusion energy research, but also to many national science and technology goals, ranging from astrophysics to industrial processing and national security. One of the objectives of the Fusion and Plasma Science subprogram is to broaden the intellectual and institutional base in fundamental plasma physics and attendant enabling technologies, preferentially in partnership with other agencies.

Fusion science represents a combination of interrelated disciplines that advance through a balance between large- and small-scale experimentation. In this regard the tokamak plasma science activity is focused on gaining a predictive understanding of the behavior of hot confined plasmas using existing U.S. research facilities (e.g., the Tokamak Fusion Test Reactor, Alcator C-MOD, and DIII-D) and through international collaborations on state-of-the-art foreign experimental facilities. Research on alternative confinement concepts will be pursued at the proof-of-principal level to identify confinement approaches which offer insights into tokamak plasma physics and innovations which hold promise for future development as economically and environmentally attractive fusion energy sources.

A particularly critical component of fusion science is the development and use of theoretical and computational tools to provide and verify detailed scientific understanding of the physical phenomena that govern the confinement of high temperature plasmas.

II. Funding Schedule: FUSION AND PLASMA SCIENCES

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Fusion Experimental Research	$165,017	$124,646	$138,333	$+13,687	+ 9.9%
Fusion Theory	16,940	16,634	18,000	+ 1,366	+ 7.6%
Basic Plasma Science	585	220	4,000	+3,780	+94.5%
Total, Fusion and Plasma Science	$182,542	$141,500	$160,333	$+18,833	+ 11.7%

III. Performance Summary: FUSION AND PLASMA SCIENCES

FY 1995 Accomplishments:

- Continued TFTR experiments to study the physics of deuterium - tritium plasmas and achieved another world record, 10.7 million watts of fusion power for about 1 second. Made preliminary observations of plasma self-heating (a key to achieving net energy output in ITER), and energy confinement in deuterium - tritium plasmas.

- Conducted experiments on TFTR and DIII-D that demonstrated improved understanding of the effect of modifying the twist of magnetic field lines, sometimes referred to as reversed sheer, in a tokamak for enhanced confinement.

- Conducted coordinated experiments on DIII-D and the European tokamaks (TEXTOR, ASDEX-UG, and JET) to study the physics of removing helium (a fusion reaction product) from the plasma fuel to maintain its purity.

- Took a pioneering step toward interconnecting major research facilities by operating MIT's Alcator C-Mod tokamak from a remote control room at Lawrence Livermore National Laboratory in California using a high speed computer link.

- Completed a competitive re-evaluation of all small scale toroidal experiments as part of shifting emphasis in small-scale experiments to more innovative alternatives. Began phasing out lower rated experiments.

- Obtained substantial improvement in the computer modeling of experimental results on the Numerical Tokamak Project, a "Grand Challenge" scale computational effort to simulate tokamak physics behavior.

III. Performance Summary: FUSION AND PLASMA SCIENCES (Cont'd)

- Terminated the TPX project in an orderly manner, ensuring documentation of the design and close-out of all industrial contracts.
- Reviewed a proposal from PPPL, ORNL, and the University of Wisconsin to build a National Spherical Tokamak Experiment (NSTX) at Princeton, which would test the merits of an extremely compact, high performance alternative confinement concept.
- Funding in the amount of $3,424,000 and $171,000 have been transferred to SBIR and STTR, respectively.

FY 1996 Accomplishments (to date and planned):

- Analyze data from the world's first series of deuterium - tritium experiments on TFTR. Extend experiments on modifying the twist of magnetic field lines in TFTR and DIII-D to higher temperatures to determine the stability of enhanced confinement.
- Study particle, heat and radiation transport processes in DIII-D to support design of a system to exhaust waste heat from ITER without damaging the surrounding walls or protective surfaces.
- Begin the phase-in of new tokamak improvement and alternate toroidal confinement concept experiments selected as a result of the 1995 competition.
- Make new calculational capabilities available to ITER design personnel to allow more accurate analysis of the behavior of plasmas in the edge of the ITER device.
- Continue to use the Numerical Tokamak Project, the fusion energy "Grand Challenge" initiative, to simulate plasma physics behavior. Work will continue on three dimensional simulations for comparison with experimental data.
- Funding in the amount of $3,070,000 and $230,000 has been provided for SBIR and STTR, respectively.

FY 1997 Planned Accomplishments:

- Take the lead within DOE and work with other Federal agencies to increase both the level of plasma science research and promote recognition as an important research endeavor.

III. Performance Summary: FUSION AND PLASMA SCIENCES (Cont'd)

- Extend the enhanced confinement, or low energy loss, region at the core of TFTR plasmas in size and time duration to increase the self-heating of the plasma using deuterium-tritium (D-T) fuel and make detailed measurements of where in the plasma the self-heating occurs for the use of ITER and other future experiments. This enhanced confinement region is referred to as "reversed shear" because the twist of the magnetic field lines changes. Evaluate feasibility of completing experiments in plasma self-heating and (alpha channelling) in FY 1997.

- Conduct initial experiments using a new high power microwave heating system on DIII-D to locally create and modify barriers to energy loss, enhancing confinement within the tokamak plasma.

- Evaluate results from small-scale innovative confinement experiments to assess their future impact on fusion science and decide on next steps.

- Conduct joint experiments on the TORE SUPRA superconducting experiment in France on the sustained fueling of plasmas for longer pulses.

- Carry out calculations and computer modeling by coordinated, inter-laboratory teams along with international collaborations.

- Funding in the amount of $3,800,000 has been budgeted for SBIR requirements.

Explanation of Funding Changes FY 1996 to FY 1997:

- An additional $8,084,000 for tokamak physics is provided to increase research on the TFTR (+$2,915,000), DIII-D (+$4,405,000), and Alcator C-Mod (+$3,055,000). This will allow investigation of recently discovered enhanced confinement regions and support of key physics design issues for ITER. Minor decreases (-$2,291,000) are allocated over the balance of the program element.

- In response to FEAC recommendations, an increase of $5,603,000 has been provided to substantially increase the support of alternative confinement concepts. A combination of new funds and those from existing experiments will form the basis for a new competitive initiative which will be used to select promising alternative approaches. Enhanced operating schedules for existing small, world class facilities will provide more rapid development of alternative concept physics understanding.

  This initiative will be led by the DOE Fusion Energy Sciences Program and will be coordinated with other DOE programs and other government agencies.

III. Performance Summary: FUSION AND PLASMA SCIENCES (Cont'd)

- An additional $3,780,000 in FY 1997 is provided for a FEAC recommended initiative supporting research for university-scale experiments in basic plasma science.

- An additional $1,366,000 is provided for increased support of theory directed toward alternative confinement concepts and the development of increased computational capability.

Fusion Technologies
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The Fusion Technologies subprogram provides the technological foundation for current day fusion science as well as the research and engineering that are required in key technology areas to advance fusion science in the future. Research will be performed in the areas of superconducting magnets, plasma heating and fueling, safety, plasma control, fuel processing and breeding, high current particle beams, heat removal and high performance materials. Research and engineering design in support of the International Thermonuclear Experimental Reactor (ITER) Engineering Design Activities (EDA) is included in this program element. This category includes work on heavy ion beam drivers for use in inertial fusion energy systems. Also included are assessments of critical aspects of integrated fusion systems.

Research on low-activation materials will be focused on high performance fusion system materials capable of withstanding long-term exposure to energetic particles and electromagnetic radiation from fusion plasma reactions.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Fusion Engineering Research	$128,564	$75,417	$75,280	$ - 137	+ 0.2%
Materials Research	9,087	7,560	8,700	+1,140	+13.1%
Total, Fusion Technologies	$137,651	$82,977	$83,980	$+1,003	+ 1.2%

III. Performance Summary: FUSION TECHNOLOGIES

FY 1995 Accomplishments

- TPX engineering design progressed through major subsystem reviews and most R&D tasks were completed to verify the design. orderly closeout of the project began leading to full termination of all contacts in FY 1996.

III. Performance Summary: FUSION TECHNOLOGIES (Cont'd)

- Completed the ITER Central Solenoid Model Magnet Design with the Japanese; delivered initial quantities of ITER superconducting magnet materials.
- With ITER partners, produced the ITER Interim Design Report with site requirements, estimated construction costs and a preliminary safety assessment.
- Demonstrated the feasibility of a high-velocity fusion fuel injector system capable of fueling plasmas for longer pulses, for potential use in future fusion experiments, including ITER.
- Initiated the testing in a tritium environment of components for a fusion fuel cleanup system.
- Completed and published the design of a fusion power plant based on the stellarator concept.
- Prepared a small-scale experiment to test the physics of how energetic ions can be merged into a beam for inertial fusion applications.
- Purchased and began radiation testing of production quantities of a vanadium alloy, one of the low-activation materials selected for potential use in advanced fusion devices.
- Funding in the amount of $3,424,000 and $171,000 has been transferred to SBIR and STTR, respectively.

FY 1996 Accomplishments (to date and planned):

- Complete the production of all superconducting materials required for fabricating the ITER model magnets and complete a manufacturing demonstration of all production steps for the ITER Central Solenoid Model Magnet.
- Continue to work with ITER partners on design and R&D necessary for completing the EDA.
- Complete testing of a vanadium alloy blanket section with high temperature lithium coolant in a magnetic field to demonstrate potential of the concept for breeding fusion fuel.
- Complete a power plant pre-conceptual engineering design using a team of university, national laboratory, and industrial design engineers and physicists.

III. Performance Summary: FUSION TECHNOLOGIES (Cont'd)

- o Complete the initial characterization of selected vanadium alloy based on the tests of irradiated samples and the evaluation of manufacturing techniques.
- o Funding in the amount of $1,581,000 and $111,000 has been provided for SBIR and STTR, respectively.

FY 1997 Planned Accomplishments

- o Complete the U.S. fabrication of the ITER Central Solenoid Model Magnet and make it ready for installation in the Japanese test facility.
- o Issue and review jointly with our partners the ITER Detailed Design Report, including a cost and safety assessment.
- o Complete the comprehensive testing of high heat flux ITER divertor components to establish performance capabilities and demonstrate ITER maintenance and repair procedures for remote replacement of divertor components.
- o Conduct non-neutral plasma experiments to study ion beam focus conditions required for inertial fusion applications.
- o Continue scientific and engineering assessments of various fusion innovations such as reverse shear tokamak confinement and vanadium materials.
- o Complete and review the IEA fusion materials neutron source conceptual design phase study and develop plans for the engineering design, prototype development and testing, and possible construction of a materials test facility as an international project.
- o Funding in the amount of $1,800,000 has been budgeted for SBIR requirements.

III. Performance Summary: FUSION TECHNOLOGIES (Cont'd)

Explanation of Funding Changes FY 1996 to FY 1997:

- Additional funds of $1,140,000 for Materials Research will be used to strengthen university programs and continue critical low-activation materials experiments in fission test reactors.
- ITER-EDA activities continue at the FY 1996 level ($54,930,000).
- Systems Studies efforts will decrease by $475,000 to reflect the deletion of demonstration power plant studies. Remaining funds will be used for Concept Evaluation Studies.
- Inertial Fusion Energy research increases $100,000.

FUSION ENERGY SCIENCES

RELATED CAPITAL FUNDING
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

Related capital funding is comprised of Capital Equipment and General Plant Projects (GPP) funding. The former provides essential hardware for the fusion experimental research program. Much of this equipment is used to support the operation of fusion science experiments or to make measurements and gather technical data. Some of this equipment replaces existing obsolete equipment while the remainder is new equipment. The principal element involves the reconfiguration of existing equipment at Princeton Plasma Physics Laboratory into a modest size fusion device called the National Spherical Tokamak Experiment (NSTX), which will be used as a national facility for studying tokamak innovations. Another substantial effort is an upgrade to the DIII-D tokamak with an advanced heat removal system (radiative divertor). When this radiative divertor is installed, DIII-D will be able to test prototype power handling systems for ITER and study current drive techniques relevant to ITER and innovative confinement concepts.

GPP funding represents an essential investment in maintaining the productivity and usefulness of Department-owned facilities and in meeting obligations for their safe and reliable operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project does not exceed $2,000,000.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$11,099	$1,917	$10,287	$ +8,370	+81.4%
General Plant Projects	2,000	1,000	1,000	0	+ 0.0%
Total, Related Capital Funds	$13,099	$2,917	$11,287	$+8,370	+74.2%

III. Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

FY 1995 Accomplishments:

- Provided support for existing tokamak physics experiments at Alcator C-Mod, TFTR, and DIII-D.
- Continued maintenance and modest upgrades to data acquisition systems by replacing or upgrading diagnostics for Alcator C-Mod and DIII-D.
- Procured high power microwave plasma heating system prototypes for DIII-D.
- Performed engineering design of a radiative divertor for future installation on DIII-D.
- Purchased special and general purpose equipment to increase the efficiency and productivity of the research and development efforts and technology test facilities related to the ITER program.
- GPP was provided for minor new construction, other capital alterations and additions, and for buildings and utility systems at PPPL.

FY 1996 Accomplishments (to date and planned):

- Continuing to provide support for existing experiments at TFTR, Alcator C-Mod, and DIII-D.
- Continuing maintenance and modest upgrades to data acquisition systems by replacing or upgrading diagnostics for Alcator C-Mod and DIII-D.
- Completing installation of high power microwave plasma heating systems on DIII-D.
- Starting fabrication of the DIII-D radiative divertor, but at a significantly reduced level.
- Using GPP funds, continuing with buildings and utility systems at PPPL.

III, Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

FY 1997 Planned Accomplishments:

- Initiate fabrication of a modest-scale spherical tokamak experiment (National Spherical Tokamak Experiment) to follow up on theoretical predictions of improved plasma confinement and stability using this alternative concept.
- Continue to provide support for existing experiments at TFTR, Alcator C-Mod, and DIII-D.
- Continue maintenance and modest upgrades to data acquisition systems by replacing or upgrading diagnostics for Alcator C-Mod and DIII-D.
- GPP is provided for minor new construction, other capital alterations and additions, and for buildings and utility systems at PPPL.

Explanation of Funding Changes FY 1996 to FY 1997:

- Overall capital equipment funding is increased by $8,370,000 which will benefit both tokamak physics and alternative concept physics, the former by continuing the radiative divertor upgrade of DIII-D (+$3,300,000), and the latter by completing the design and initiating fabrication of the National Spherical Tokamak Experiment (+$5,000,000). This increase is almost back to the FY 1995 level.

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FUSION ENERGY SCIENCES CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY

(Tabular dollars in thousands, Narrative in whole dollars)

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Operating Expenses					
General Plant Projects (total)	$ 2,000	$ 1,000	$ 1,000	$ 0	0.0%
Capital Equipment (total)	11,099	1,917	10,287	+ 8,370	81.4%

Major Items of Equipment (CE $2 Million and Above)

	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY1997 Request	Acceptance Date
1. Doublet-III	$ 32,400	$ 9,600	$ 4,800	$ 700	$ 4,000	FY 1999
2. NSTX	18,500	0	0	0	5,000	FY 1999

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BASIC ENERGY SCIENCES

PROGRAM MISSION

The mission of the Basic Energy Sciences (BES) program is to expand scientific knowledge needed to develop new energy technologies, to improve existing energy technologies, and to aid economic growth.

The GOAL of the BES program is to:

Support the highest quality research through thorough and fair peer review; operate major scientific user facilities, such as synchrotron radiation and neutron sources, for broad support of many forefront research areas; plan, design, and construct advanced facilities to meet future research needs. To accomplish the mission, BES supports basic scientific research at universities, national laboratories and industrial research laboratories (primarily through the Small Business Innovation Research program) in materials sciences, chemical sciences, engineering, geosciences, and energy biosciences.

The OBJECTIVES related to these goals are:

1. To CONTRIBUTE TO SUSTAINABLE ENERGY PRODUCTION AND USE - Conduct basic research that creates scientific and engineering knowledge in support of Department of Energy mission thrusts to accelerate the utilization and development of energy technologies in a safe and environmentally compatible manner.

2. To PROVIDE WORLD CLASS SCIENTIFIC FACILITIES - Provide and operate major user facilities needed for DOE research and foster research partnerships with industry and the entire scientific community. These scientific facilities include synchrotron radiation sources, neutron sources, and electron beam microanalytical instruments which are essential forefront research tools that scientists use to advance knowledge and develop new products, materials, and manufacturing processes.

PROGRAM MISSION - BASIC ENERGY SCIENCES (Cont'd)

3. To ENSURE THAT RESEARCH RESULTS ARE WIDELY KNOWN, VALUED AND USED - Promote open communications and the transfer of information, know-how and technology among university, government, and the private sector. Activities include peer review of all research activities and strong coordination and planning with the energy technology offices of the Department, collocation of researchers, input from all stakeholders, and in-depth workshops and conferences between scientists, engineers, and technologists with management sponsorship and participation. The national laboratories and universities are excellent resources to bring about these important interactions.

Scientific Facilities Utilization:

The Basic Energy Sciences program request includes $277,636,000 to maintain support of the Department's scientific user facilities. Approximately 20% of this amount is associated with the continuation of the science user facilities initiative contained in the FY 1996 budget request. This investment will provide research time for thousands of scientists in universities, Federal agencies, and U.S. companies. It will also leverage both Federally and privately sponsored research, consistent with the Administration's strategy for enhancing the U.S. National science investment. The proposed funding supports the number of users served in FY 1996, which was an increase of several thousand over FY 1995 levels, and will maintain the quality of service and availability of facility resources to users, including university and government scientists, as well as private companies who rely on unique facilities for their basic research needs. The proposed funding level will also provide for efficient utilization of high technology facilities, which are generally oversubscribed by factors of two to three. Research communities that will benefit from this initiative include structural biology, materials sciences, superconductor technology, and medical research and technology development.

PERFORMANCE MEASURES:

The Department has developed performance measures for the results of its basic research activities. General performance measures of program outputs for basic research include such metrics as the number of scientists supported, the number of students earning advanced degrees, the number of scientific publications in peer-reviewed journals, the number of awards from professional organizations, and the number of citations in scientific publications. Metrics for the transfer of new knowledge to a technology application include the number of cooperative agreements with industry, the number of projects resulting in support from a DOE Energy Technology program, the number of invention records and patents, and the number of industry users at the major scientific user facilities. For construction projects, metrics can include costs and schedule milestones completed against approved project baselines. These performance measures are easily tabulated, commonly used, and begin to provide a framework for evaluating program efficiency. However, the most descriptive indicators in this area are qualitative rather than quantitative measures. In order to measure outcomes, or program effectiveness, the impact of the research outputs must be assessed in terms of the quality of the new knowledge gained, its usefulness to technology development, and its longer-term benefit to society. Although there are limited and expensive methods for evaluating the quality of science through peer-review metrics, no metric exists that can accurately measure

PROGRAM MISSION - BASIC ENERGY SCIENCES (Cont'd)

science's impact on technology and society. The extent of industrial interest is a measure of the value of the research. BES has been involved in over 500 collaborations with industry. These collaborations extend over all sectors of the economy.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- The existing National User Facilities will operate more effectively (in some cases with substantial increases in operating hours, and in others, with the implementation of modern state-of-the-art instrumentation which will use the neutron and photon beams more effectively) with more experiments and more users as a consequence of the President's User Facility Initiative in FY 1996. This initiative will be sustained in FY 1997 with $277,636,000 included to maintain support of the Department's Scientific User Facilities.

- Commissioning of the Advanced Photon Source Storage Ring began in FY 1995 and a circulating current of 8.5 milliamperes was achieved resulting in the first x-ray beams at this third generation x-ray source. The design of 100 milliamperes was reached in January of 1996.

- Preconstruction research and development, environmental impact statement, and conceptual design will be performed for a Spallation Neutron Source. In addition, options will be evaluated for upgrading existing reactor and spallation sources as near-term solutions for providing neutrons while the next generation Spallation Neutron Source is being developed.

- Construction of the Combustion Research Facility, Phase II will continue in FY 1996 and FY 1997 with completion scheduled for FY 1999.

- The program assumes responsibility for the management of the Experimental Program to Stimulate Research (EPSCoR) in FY 1996.

BASIC ENERGY SCIENCES

(Dollars in thousands)

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Research					
Materials Sciences	$263,598	$367,400	-$30,295 a/	$337,105	$334,560
Chemical Sciences	154,446	198,400	-21,357 b/	177,043	173,370
Engineering and Geosciences	34,635	41,700	-2,889 c/	38,811	41,250
Energy Biosciences	26,935	30,200	-1,500 d/	28,700	28,185
Advanced Energy Projects	0	12,300	-12,300 e/	0	0
Applied Mathematical Sciences	0	116,500	-116,500 f/	0	0
Program Direction	0	9,500	-9,500 g/	0	0
Related Capital Funding	58,734	0	62,931	62,931	64,810
Subtotal, Research	538,348	776,000	-131,410	644,590	642,175
Construction	58,379	15,661	-5,675 h/	9,986	11,500
Subtotal, Basic Energy Sciences	596,727	791,661	-137,085	654,576	653,675
Adjustment	-7,472 j/	-17,168 k/	3,783 m/	-13,385 j/	0
Total, Basic Energy Sciences	$589,255 n/	$774,493	-$133,302	$641,191	$653,675

a/ Reprogramming to the Indian Energy Resources programs ($-1,135,000); redistribution between subprograms within Basic Energy Sciences ($+3,415,000); and comparability transfer to Related Capital Funding ($-32,575,000).

b/ Reprogramming to the Indian Energy Resources programs ($-593,000); redistribution between subprograms within Basic Energy Sciences ($+1,500,000); and comparability transfer to Related Capital Funding ($-22,264,000).

c/ Reprogramming to the Indian Energy Resources programs ($-124,000); redistribution between subprograms within Basic Energy Sciences ($-1,011,000); and comparability transfer to Related Capital Funding ($-1,754,000).

d/ Reprogramming to the Indian Energy Resources programs ($-87,000); redistribution between subprograms within Basic Energy Sciences ($-750,000); and comparability transfer to Related Capital Funding ($-663,000).

e/ Reprogramming to the Indian Energy Resources programs ($-65,000); redistribution between subprograms within Basic Energy Sciences ($-292,000); and comparability transfer to Computational and Technology Research ($-11,943,000).

f/ Reprogramming to the Indian Energy Resources programs ($-482,000); redistribution between subprograms within Basic Energy Sciences ($-2,862,000); and comparability tranfer to Computational and Technology Research ($-113,156,000)

g/ Comparability transfer to Energy Research Energy Supply Research and Development Program Direction ($-9,500,000).

h/ Redistribution of AIP over $2,000,000 to Related Capital Funding for AIP under $2,000,000 ($-5,675,000).

j/ Share of Energy Supply Research and Development general reduction for use of prior year balances assigned to this program on a comparable basis. The total general reduction is applied at the appropriation level.

k/ Share of Energy Supply Research and Development general reduction for use of prior year balances assigned to this program on a non-comparable basis. The total general reduction is applied at the appropriation level.

m/ Comparability transfer to Computational and Technology Research.

n/ Excludes $9,859,000 which has been transferred to the SBIR program and $493,000 which has been tranferred to the STTR program.

Public Law Authorizations:

Public Law 95-91 "Department of Energy Organization Act" (1977)

BASIC ENERGY SCIENCES
(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office					
Los Alamos National Laboratory	$11,655	$32,187	-$12,907	$19,280	$17,272
Sandia National Laboratories	20,023	25,630	-4,725	20,905	28,021
Chicago Operations Office					
Ames Laboratory	15,475	21,349	-5,321	16,028	16,227
Argonne National Laboratory	177,375	155,725	-10,214	145,511	141,579
Brookhaven National Laboratory	71,949	83,115	-863	82,252	80,467
Fermi National Accelerator Laboratory	0				
Golden Field Office					
National Renewable Energy Laboratory	3,533	5,387	-1,150	4,237	3,790
Idaho Operations Office					
Idaho National Engineering Laboratory	3,660	3,119	-95	3,024	3,138
Oakland Operations Office					
Lawrence Berkeley National Laboratory	54,398	90,687	-27,821	62,866	62,011
Lawrence Livermore National Laboratory	5,709	20,452	-14,794	5,658	4,910
Stanford Linear Accelerator Center	16,095	21,459	0	21,459	20,996
Oak Ridge Operations Office					
Oak Ridge Institute for Science & Education	455	725	0	725	424
Oak Ridge National Laboratory	83,590	96,739	-11,395	85,344	90,502
Continuous Electron Beam Accelerator Facility	0	150	-150	0	0
Richland Operations Office					
Pacific Northwest National Laboratory	11,759	11,655	-523	11,132	11,264
All Other Sites a/	121,051	223,282	-47,127	176,155	173,074
Subtotal	596,727	791,661	-137,085	654,576	653,675
Adjustment	-7,472 b/	-17,168 b/	3,783 c/	-13,385 d/	0
TOTAL	$589,255	$774,493	-$133,302	$641,191	$653,675

a/ Funding provided to universities, industry, other Federal agencies and other miscellaneous contractors.
b/ Share of Energy Supply Research and Development general reduction for use of prior year balances assigned to this program on a non-comparable basis.
c/ Share of Energy Supply Research and Development general reduction for use of prior year balances assigned to this program on a comparable basis.
c/ Comparability transfer to Computational and Technology Research.

BASIC ENERGY SCIENCES
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995		FY 1996		FY 1997
		Comparable	Non-Comp	Comparable	Non-Comp	
	Direct Funding:					
	Personnel compensation:					
11.1	Full-time permanent		$5,090		$6,061	
11.3	Other than full-time permanent		42		60	
11.5	Other personnel compensation		231		328	
11.8	Special personal services payments		0		0	
11.9	Total personnel compensation	0	5,363	0	6,449	0
12.1	Civilian personnel benefits		979		1,324	
13.0	Benefits for former personnel		157		200	
21.0	Travel and transportation of persons		328		356	
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services	75	2,016		1,995	0
25.2	Other services	6,187	9,717	50,298	64,828	53,868
25.3	Purchases of goods and services from Government accounts					
25.4	Operation and maintenance of facilities	364,505	455,877	410,335	493,344	408,497
25.5	Research and development contracts					
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment	38,854	37,749	48,339	56,043	45,695
32.0	Land and structures	74,782	66,468	23,901	23,901	30,615
41.0	Grants, subsidies and contributions	105,454	124,910	109,500	128,500	115,000
99.0	Subtotal, obligations	589,857	703,564	642,373	776,940	653,675
	Reimbursable Obligations	0	0	0	0	
99.9	Total Obligations	589,857	703,564	642,373	776,940	653,675
	Recovery of prior year obligations	-36	-58	-17	-26	
	Unobligated balance avail, start of year	-1,672	-1,081	-1,165	-2,421	
	Unobligated balance avail, end of year	1,106	2,421	0	0	
	Budget Authority	$589,255	$704,846	$641,191	$774,493	$653,675

MATERIALS SCIENCES
(Tabular dollars in thousands, Narrative in whole dollars)

I. **Mission Supporting Goals and Objectives:**

The Materials Sciences subprogram supports energy related fundamental scientific research in materials and the operation of national scientific user facilities that support the energy mission needs and Strategic Plan of the Department. The facility operations activities funded in this subprogram are described in a separate "Major User Facility" section of this budget. Facilities supported include the National Synchrotron Light Source (NSLS), the High Flux Beam Reactor (HFBR), the Intense Pulsed Neutron Source (IPNS), the Stanford Synchrotron Radiation Laboratory (SSRL), the Manuel Lujan, Jr. Neutron Scattering Center (MLJNSC), the Advanced Light Source (ALS), and the Advanced Photon Source (APS).

Materials Science is an enabling technology. The efficiency, economics, environmental acceptability, and safety of all energy generation, conversion, transmission, and conservation technologies are limited by the performance of materials. Research in Materials Sciences is concerned with the discovery and optimization of the behavior and performance of materials in these energy technologies. This research seeks to understand the synergistic relationship among the synthesis, processing, structure, properties, behavior, and performance of materials in such energy technologies.

II. **Funding Schedule:**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Materials Sciences Research	$129,773	$162,669	$161,480	$- 1,189	- 0.7%
Facilities Operations	133,825	174,436	173,080	- 1,356	- 0.8%
Total, Materials Sciences	$263,598	$337,105	$334,560	$- 2,545	- 0.8%

III. **Performance Summary: MATERIALS SCIENCES (Cont'd)**

FY 1995 Accomplishments:

- Synthesis and processing research on advanced materials such as the design of advanced chemical vapor deposition reactors for the fabrication of semiconductors has led to materials with enhanced behavior and performance and reductions in the waste, pollution, and cost associated with the production of new and modified materials.

- Improved scientific understanding of corrosion mechanisms, achieved partly through experimental techniques such as optically pumped nuclear magnetic resonance of surfaces, x-ray characterization of corroding surfaces, and direct atom imaging and verification of surface diffusion could lead to economic savings as well as improved performance in energy technologies. Aqueous, galvanic, and gaseous corrosion damage costs the U.S. economy 5% of the Gross Domestic Product per year.

- Fundamental research on energy losses in high-performance magnets will lead to improved efficiency motors and transformers. Magnetic energy losses in motors and transformers cost the U.S. economy $16 million per year.

- A basic understanding of the welding and joining of metals and ceramics has led to improved welding procedures for dissimilar metals and for the joining of metals to ceramics. Significantly improved welds reduce catastrophic failures and increase lifetime of components in energy power plants.

- Improved understanding of the high-rate and superplastic forming of metals and alloys has been gained through fundamental theory and computer simulation of the process. Better understanding of interfacial deformation mechanisms during high-rate metal forming led to the successful fabrication of lightweight alloys for components, such as a door panel produced by a domestic automobile manufacturer.

- Improved understanding of neutron-induced irradiation damage has led to more accurate predictive modelling and failure prevention in on-line commercial nuclear power plants.

- New analytic methods involving synchrotron irradiation have led to more sensitive analyses for catalysts and trace impurities in surfaces and interfaces.

III. **Performance Summary: MATERIALS SCIENCES (Cont'd)**

- Neutron scattering experiments have provided an understanding of magnetic structure and excitations, hydrocarbons, residual stress mapping and atomic arrangements in a broad range of materials (polymer blends, metals, alloys, and ceramics).

- Basic research on the properties and behavior of high-temperature load bearing, structural ceramics, and ceramic matrix composites has made these advanced materials move closer towards acceptance in large-scale applications for high-speed cutting tools and fuel efficient and low pollutant engines and turbines.

- Basic research on sound wave scattering by microscopic flaws in solid materials has led to improved nondestructive diagnostics and early warning of impending failure.

- Understanding of the effects of defects produced by processing of ceramics and polymers has led to significantly improved performance for ceramic and polymer electrolytes for batteries and fuel cells.

- Understanding the grain boundary structure and microchemistry, phase equilibria, processing and behavior of ordered intermetallic alloys has led to increased commercial application for heat, load, wear and corrosion resistant applications.

- Basic research on the interaction of charged particle beams with solid surfaces has led to the commercialization of surface modification and ion beam implantion technologies for improved corrosion, wear resistance, and surface load bearing applications.

- New understanding in the processing of high-temperature superconductors with improved current-carrying capability has brought them closer to eventual commercialization.

- Coordinated multi-institutional and multidisciplinary basic research projects were initiated in response to workshops under the Center of Excellence for Synthesis and Processing of Advanced Materials concerning conventional and superplastic metal forming, materials joining, nanostructured materials for energy applications, microstructural engineering with polymers, tailored microstructures in hard magnets, processing for surface hardness, and mechanically reliable surface oxides for high temperature corrosion resistance. The Center of Excellence for Synthesis and Processing is coordinated by Sandia National Laboratories and involves work at 13 national laboratories.

- Funding in the amount of $5,433,000 and $272,000 has been transferred to the SBIR and STTR programs, respectively.

III. **Performance Summary: MATERIALS SCIENCES (Cont'd)**

FY 1996 Planned Accomplishments (to date and planned):

- Basic scientific investigations will be continued in all of the topics that correspond to the above FY 1995 Accomplishments and in all of the seven projects initiated in FY 1995 under the Center of Excellence for the Synthesis and Processing of Advanced Materials.

- Coordinated multi-institutional and multidisciplinary new projects that will be initiated in response to workshops under the Center of Excellence for the Synthesis and Processing of Advanced Materials concerning high efficiency photovoltaics and bulk metallic glasses.

- Research will be initiated concerning photonic band gap materials that may lead to improved signal transmission and processing using light instead of electrons.

- Research to study the role of defects in advanced permanent magnet materials with a goal of enhancing the magnetic strength will be initiated that could lead to significant reductions in the energy losses and cost of operation of motors.

- Initiate research using new techniques to study the nanometer-scale magnetic structure-property relationships in materials surfaces, thin films, and multilayers that will lead to an improved understanding of new phenomena such as "giant magnetoresistance" and "spin valve" effects which have the potential to enhance existing electronics technologies.

- Peer-reviewed basic materials research will be initiated that fulfills the needs and opportunities that were identified in the joint Basic Energy Sciences-National Science Foundation Vehicles for the Future workshop that was held in January 1995.

- Peer-reviewed basic materials research will be initiated that will be responsive to needs and opportunities relating to total product lifecycle and recyclability.

- Peer-reviewed basic materials research will be initiated that will be responsive to needs and opportunities relating to the minimization, safe transport, and containment of waste and hazardous materials.

- Preconstruction research and development, environmental impact statement, and Conceptual Design will be initiated for a Spallation Neutron Source. In addition, options will be evaluated for upgrading existing reactor and spallation sources as near-term solutions for providing neutrons while the next generation Spallation Neutron Source is being developed.

III. **Performance Summary**: **MATERIALS SCIENCES** (Cont'd)

- Experiments involving very high resolution, analytical, and high voltage environmental cell electron beam microcharacterization will be carried out at the Electron Microscopy Center for Materials Research, Center for Microanalysis of Materials, National Center for Electron Microscopy and Shared Research Equipment Program.

- Funding in the amount of $6,599,000 and $494,000 has been budgeted for the SBIR and STTR programs, respectively.

FY 1997 Planned Accomplishments:

- Basic scientific investigations will be continued in all of the topics that are planned for FY 1996 with slight reductions in the areas of Solid State Physics, Materials Chemistry, Metallurgy and Ceramics..

- Initiate research concerning the surface and interface properties and behavior of quasicrystals for materials with improved corrosion resistance.

- Initiate research concerning charge transport across superconductor-semiconductor and superconductor-metal interfaces to develop understanding on joining of superconductors with normal materials.

- Initiate research concerning the kinetics of phase transformations in the heat affected zones of welds to improve understanding of failure in welds.

- Initiate research concerning the synthesis of non-equilibrium materials using laser-molecular beam epitaxy to synthesize new materials with improved properties.

- Peer-reviewed basic materials research that fulfills the needs and opportunities that were identified in the joint Basic Energy Sciences-National Science Foundation "Basic Research Needs for Environmentally Responsive Technologies of the Future" Workshop that was held in January 1996 will be continued.

- Peer-reviewed basic materials research that is responsive to needs and opportunities relating to total product lifecycle will be continued.

III. **Performance Summary: MATERIALS SCIENCES** (Cont'd)

- Peer-reviewed basic materials research that is responsive to needs and opportunities relating to the minimization, safe transport, and containment of waste and hazardous materials will be continued.

- Conceptual Design, environmental impact statement, and preconstruction research and development for the Spallation Neutron Source will be continued. In addition, options will be evaluated for upgrading existing reactor and spallation sources as near-term solutions for providing neutrons while the next generation Spallation Neutron Source is being developed.

- Funding in the amount of $8,364,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

Reduced funding levels will cause slight decreases in research in the areas of solid state physics, materials chemistry, metallurgy, and ceramics will be decreased ($-1,189,000).

Overall operating time at user facilities such as HFBR, IPNS, NSLS, SSRL, LANSCE, and ALS will be maintained at slightly below the FY 1996 level ($-1,356,000). Operation of the Advanced Photon Source is initiated.

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CHEMICAL SCIENCES
(Tabular dollars in thousands, Narrative in whole dollars)

I. **Mission Supporting Goals and Objectives:**

The Chemical Sciences subprogram activity supports a broad range of basic research in molecular, atomic and chemical engineering sciences necessary for both improvements in existing energy technologies and that provides the necessary underlying science base that may lead toward the development of new energy technologies. The program is focussed upon the creation of new knowledge that will impact a broad spectrum of energy technologies. Major chemical sciences research efforts are important to the more efficient conversion of solar energy as well as improved catalytic processing to produce fuels, electricity or chemicals; more efficient and cleaner combustion; better utilization of the nation's carbon-containing resources including natural gas, oil, and coal; improved approaches to environmental concerns related to energy production; more sensitive and specific monitoring of physical and chemical processes; and the advancement of fusion and plasma related sciences.

In addition, the Chemical Sciences program provides support for major scientific user facilities which are operated for the benefit of the entire scientific community. The facility operations funded in this subprogram are described in a separate "Major User Facility" section in this budget. Facilities supported include: the National Synchrotron Light Source (NSLS), the High Flux Isotope Reactor (HFIR), the Radiochemical Engineering Development Center (REDC), the Stanford Synchrotron Radiation Laboratory (SSRL), and the Combustion Research Facility (CRF).

II. **Funding Schedule:**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Chemical Sciences Research	$100,629	$114,972	$112,105	$- 2,867	- 2.5%
Facilities Operations	53,817	62,071	61,265	- 806	- 1.3%
Total, Chemical Sciences	$154,446	$177,043	$173,370	$- 3,673	- 2.1%

III. **Performance Summary: CHEMICAL SCIENCES** (Cont'd)

FY 1995 Accomplishments:

- A better understanding of the thermal transformations of hydrocarbons is key to developing improved coal combustion and coal conversion technologies. A new semiempirical approach has been devised that quantitatively predicts needed thermochemical data for the important species involved in these thermal conversions.

- Basic studies have led to the identification of a new catalyst that can remove undesirable nitrogen oxides components from automobile exhaust as the auto is operated under highly fuel efficient conditions (lean-burn). Studies have shown that certain metal oxide-based catalysts, are active for the removal of the nitrogen oxides. Here, as in other research, the elucidation of the mechanism through identification of the reactive intermediates played a critical role.

- Fundamental investigations of catalytic metal surfaces in the presence of carbon led to the realization that new carbide structures would be formed on iron surfaces at elevated temperatures in the presence of carbon-containing compounds. This led to the spin off discovery of a new high-temperature iron surface coating that has superior lubrication properties.

- Laser pulses are used to study dynamical processes at ever shorter times. Basic combustion studies of the very short times required for a molecule to redistribute its energy or to fall apart at high temperatures led to a device which is now a commercial product to better characterize short laser pulses.

- The lack of general principles governing the relationship between catalytic activity and the physical, chemical, and electronic structure of the catalyst has impeded catalyst design for many energy intensive industrial applications. Recent catalysis basic research results have removed some of this impediment by showing how surface shape and structure have a major effect on catalytic activity.

- New atomic physics experimental results on neutralization of ions through collisions with surfaces have improved our understanding of industrial plasma processes used for semiconductor electronics, materials strengthening and fusion technology.

- A technique developed to study combustion has been found to be broadly useful in experiments supported through other Federal programs. The method, photofragment imaging, has been used to identify a new path for the generation of ozone in the upper atmosphere. This result will help explain why current models underestimate the amount of ozone in the upper atmosphere.

III. **Performance Summary: CHEMICAL SCIENCES** (Cont'd)

- o A successful model of coal swelling in solvents is a significant advance that will permit improved coal conversion possibilities through better understanding of the structure-reactivity and chemical bonding relationships in coal.

- o Initiated realignment of a national laboratory radiation chemistry program into research critical to a better understanding of environmental issues associated with the remediation of tank wastes.

- o A biomimetic system for photosynthesis has been developed that successfully mimics all of the properties of the natural photosynthetic protein. The system undergoes the necessary photochemical transformations with an efficiency that rivals the natural system and represents an important advance in the conceptual development needed for the conversion of solar energy into other energy forms.

- o Funding in the amount of $3,169,000 and $158,000 has been transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned):

- o Collaborative combustion related research critical to improved energy efficiency with reduced pollution in internal combustion engines and stationary combustors will be enhanced.

- o Research utilizing the major scientific user facilities will be enhanced in high priority research areas including combustion reaction dynamics, the characterization of environmental samples, materials precursors and plasma science for advanced processing.

- o Better integration of research in separations science, actinide chemistry, analytical chemistry and radiation chemistry will be carried out with those aspects closely related to environmental management programs and issues.

- o Separations research in support of analytical determinations and improved separation technology aimed at solving environmental problems will be emphasized.

- o Research on systems that mimic natural photosynthesis and offer a real opportunity for conversion of solar energy into other useful energy forms with minimal insult to the environment will be enhanced.

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III. **Performance Summary: CHEMICAL SCIENCES** (Cont'd)

- New knowledge, both theoretical and experimental, of high and low temperature plasmas will be developed. These efforts will achieve a better physical and chemical understanding of the plasma so that technologies dependent upon such information will be improved.

- Catalytic properties of roughened surfaces will be investigated to understand how the morphology of the roughened surface affects the selectivity of isomerization/hydrogenation reactions important to energy conversion and in nitric oxide decomposition reactions important to reducing emissions of environment pollutants associated with energy utilization.

- Research will lead to new battery electrodes that will be transferred to the commercial sector for performance and scale up evaluation.

- Funding in the amount of $3,458,000 and $259,000 has been budgeted for the SBIR and STTR programs, respectively.

FY 1997 Planned Accomplishments:

- Research utilizing the major scientific user facilities will continue to be enhanced in high priority research areas including combustion reaction dynamics, the characterization of environmental samples, materials precursors and plasma science for advanced processing.

- Interfacial chemistry research that emphasizes understanding of surface properties at the molecular level will provide new understanding of and improved catalytic and separations technologies.

- Studies of the fundamental molecular properties of gases, liquids and solids will be carried out to aid development of molecularly selective separation processes.

- Theoretical advancements to resolve critical parameters in battery design and composition will be incorporated into new devices for evaluation of performance criteria.

- Technical advances, building upon those from preceding years, will continue toward possible artificial high-efficiency photosynthetic devices that directly convert solar energy into chemical energy.

III. **Performance Summary: CHEMICAL SCIENCES** (Cont'd)

- Laser-based diagnostics will be used to examine chemical processes involved in combustion. The systems to be examined will be isolated so as to gain fundamental understanding of the dynamics of the system which will be applied to actual combustion processes.
- Synchrotron based atomic physics research will be applied to the study of atomic and plasma systems that will permit further advances in commercial plasma processes and fusion energy concepts.
- Research in organic coal chemistry and analytical and radiation chemistry will be decreased.
- Funding in the amount of $4,334,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

Research in the areas of organic coal chemistry as well as analytical and radiation chemistry will be reduced ($-2,867,000).

Overall operating time at user facilities such as NSLS, HFIR, CRF, REDC, and SSRL will be maintained at slightly below the FY 1996 level ($-806,000).

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ENGINEERING AND GEOSCIENCES
(Tabular dollars in thousands, Narrative in whole dollars)

I. **Mission Supporting Goals and Objectives:**

This program conducts research in two disciplinary areas, Engineering and Geosciences, to support existing energy technologies and strengthen the foundation for future energy technologies. Ultimate research objectives include pollution avoidance, control, and remediation; increased energy efficiency; and assuring the underlying knowledge for the availability and responsible use of future energy supplies. The Engineering Research program serves as an effective conduit between basic science and applications-oriented research and development with the goals of maintaining technical leadership and stimulating job growth. Geosciences Research provides the foundation for environmentally sound, efficient, and economic use of the Earth's energy resources and provides a scientific foundation for innovative and efficient site characterization and remediation technologies. The Engineering and Geosciences research programs are implemented using individual investigator initiated research proposals subjected to merit (peer) review procedures.

II. **Funding Schedule**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Engineering Research	$ 15,865	$ 17,924	$ 17,550	$- 374	- 2.1%
Geosciences Research	18,770	20,887	23,700	+ 2,813	+ 13.5%
Total, Engineering and Geosciences	$ 34,635	$ 38,811	$ 41,250	$+ 2,439	+ 6.3%

III. **Performance Summary: ENGINEERING AND GEOSCIENCES (Cont'd)**

FY 1995 Accomplishments:

Produced more than 300 publications in the peer-reviewed scientific literature dealing with research accomplishments in Engineering and Geosciences.

Engineering

- Continued support for 36 three-year predoctoral fellowships addressing energy-related problems in integrated manufacturing.
- Developed new insight into processes in flows of gas and liquids which has provided a better understanding of the onset of pulsating and irregular flow which causes damage in oil and gas pipelines.
- Conducted theoretical and experimental studies which enable realistic models for prediction of the behavior of nonlinear systems with memory (i.e. hysteresis) occurring in most engineering systems and application (electrical motors/generators, chemical process plants, automobile tires, etc.).
- Advanced the scientific basis for design and construction of autonomous intelligent systems (smart instruments, smart robots, smart sensors) for use in energy-related hostile environments (e.g. radioactive and mixed waste sites).
- Performed studies on the effects of periodic and random temperature and stress changes on the reliability and longevity of energy structures.
- Funding in the amount of $325,000 and $16,000 has been transferred to the SBIR and STTR programs, respectively.

Geosciences

- Developed new ways to observe small scale pore structure in rocks using laser scanning confocal microscopy and synchrotron-based high-resolution computed microtomography to improve foundation for predicting fluid (gas, oil, geothermal, ground water) flow and interaction in porous and fractured rocks.

III. **Performance Summary: ENGINEERING AND GEOSCIENCES** (Cont'd)

- Applied poroelasticity theory to observational data from a producing natural gas field to show the cause of microearthquakes and subsidence was volumetric contraction and very small (30MPa) stress changes associated with production.

- Proposed an approach which can place an upper limit on the fractal scale dependence of mechanical and fluid transport properties of single fractures.

- Collected and interpreted elemental, isotopic, and molecular data from natural samples to show that active migration of oil and gas to shallow reservoirs can take place rapidly (few years) showing that evaluation as a dynamic and replenishing system is essential.

- Demonstrated that it is possible to use stable isotope information to trace multiple high-temperature geologic events in some zircons even in the presence of radiation damage.

- Funding in the amount of $383,000 and $19,000 has been transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned):

Engineering

- The first cohort (12) of National Academy of Engineering Department of Energy predoctoral fellows in energy-related integrated manufacturing will graduate.

- Fundamental work on the behavior of dense suspensions and slurries will continue.

- Nonlinear theories in mechanics will enhance the scientific basis for nonimaging optical systems, such as area illumination systems, energy efficient flat display screens for portable computers, etc.

- The feasibility of chemical sensors using in vitro samples of nerve tissue integrated with conventional electronics will be studied.

III. **Performance Summary: ENGINEERING AND GEOSCIENCES** (Cont'd)

- Research at the interface between chemical engineering and biology will continue to strengthen by providing the scientific basis for improving the practicality and economic viability of biological processes in energy-related applications.

- Funding in the amount of $350,000 and $26,000 has been budgeted for the SBIR and STTR programs, respectively.

Geosciences

- Initiate experiments on the GeoCARS beamline at the Advanced Photon Source (ANL) for space- and time-resolved spectroscopy providing unique information on mineral-fluid reactions important in energy and environmental applications.

- Develop new methods of modeling and processing seismic data through collaborative basic research involving DOE Laboratory, University, and Industry researchers to obtain improved high-resolution, 3-D images of subsurface structure and properties.

- Obtain and interpret detailed images of subsurface electrical conductivity to assess role and magnitude of fluid flow in large-scale faulting and formation of fluid-filled reservoirs.

- Continue research using partitioning of naturally occurring isotopes as tracers for mineral-fluid and gas-liquid reactions at spatial scales ranging from intragranular to sub-continental, as related to the origin, distribution, and recovery of energy resources.

- Continue research on the role of sulfur/sulfonates, thermolytic decomposition of organic matter, and reactions between organic and inorganic rock constituents important in the origin, migration, and entrapment of oil, gas, geothermal fluids, and contaminated ground water.

- Funding in the amount of $410,000 and $31,000 has been budgeted for the SBIR and STTR programs, respectively.

III. **Performance Summary: ENGINEERING AND GEOSCIENCES (Cont'd)**

FY 1997 Planned Accomplishments:

Engineering

- Second group of 12 National Academy of Engineering Department of Energy predoctoral fellowships will graduate and documentation of program effectiveness will be compiled.
- Continue research at the forefront of the mechanical sciences with particular emphasis on the formation and dynamics of foams and the rheological behavior of suspensions and slurries.
- Strengthen foundation for application of the theory of non-linear systems to improve the application to complex natural phenomena.
- Continue research at a reduced level on interacting autonomous systems and reconfigurable systems which can readily adapt to changing tasks and environments.
- Continue to strengthen research at the interface between biology and chemical process control to improve the practicality and viability of using biological processes in energy and environmental applications.
- Research in engineering data and analysis will continue to provide critical thermodynamic data important for industrial processes and environmental cleanups, such as needed for separation of aqueous-hydrocarbon mixtures.
- Funding in the amount of $439,000 has been budgeted for the SBIR program.

Geosciences

- Extend research in theoretical and computational modeling of atomistic-level reactions taking place at mineral-fluid surfaces using first principles methods and taking advantage of new data obtained at the Advanced Photon Source.
- Refine high-resolution electromagnetic and seismic geophysical techniques for characterization of geologic structure and heterogeneity in fluid-bearing reservoirs of the Earth's upper crust using surface, surface to hole, and cross-hole met

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III. **Performance Summary: ENGINEERING AND GEOSCIENCES** (Cont'd)

- o Continue to develop integrated approach for analysis and interpretation of fracture-controlled fluid flow using advanced geophysical and rock mechanics methods with broad-based application to energy resource use issues.
- o Increase research on geochemistry, geophysics, and geohydrology of fluid flow and in sedimentary basins using integrated experimental, theoretical, and observational techniques.
- o Maintain research on fundamental physical, thermodynamic, and transport properties of rocks, minerals, geologic fluids and their synthetic analogues.
- o Funding in the amount of $593,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

Funding will be reduced in the areas of intelligent control systems ($-374,000).

Funding will be increased for basic research on fluid transport in, and geophysical imaging of, oil and gas reservoirs ($+2,813,000).

ENERGY BIOSCIENCES
(Tabular dollars in thousands, Narrative in whole dollars)

I. **Mission Supporting Goals and Objectives:**

The Energy Biosciences subprogram supports research to provide a basic understanding of the biological phenomena associated with the capture, transformation, storage and utilization of energy. The research on plant and non-medical microorganisms focuses on a range of biological processes including photosynthesis, bioenergetics, primary and secondary metabolism, the synthesis and degradation of biopolymers such as lignin and cellulose, anaerobic fermentations, genetic regulation of growth and development, thermophily and other phenomena associated with metabolism under harsh conditions. The research supported is fundamental and is selected to broadly support Department of Energy's goals and objectives.

II. **Funding Schedule:**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Energy Biosciences	$ 26,935	$ 28,700	$ 28,185	$- 515	- 1.8%
Total, Energy Biosciences	$ 26,935	$ 28,700	$ 28,185	$- 515	- 1.8%

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III. **Performance Summary:**

FY 1995 Accomplishments:

- Developed mutational strategies to study the synthesis of plant cell wall complex carbohydrates, the most abundant biopolymer.
- First isolation of a gene that confers plant resistance to a bacterial disease provided new insights into the "immune" system of plants.

III. **Performance Summary: ENERGY BIOSCIENCES** (Cont'd)

- Significant progress was made in elucidating the macromolecular structure, organization and catalytic mechanisms of the cellulose degrading complex from bacteria.
- The biosynthetic pathway of an unusual fatty acid (petroselinic acid) was determined in oil seeds. Petroselinic acid has important chemical feedstock uses.
- Demonstrated that individual enzymes from bacteria capable of living in the cold (psychrophilic bacteria) are active at significantly lower temperatures than their counterparts from temperate organisms.
- Cover of recent Science magazine highlights "Emerging Plant Science." Of the five feature articles, three acknowledge Energy Bioscience support.
- Funding in the amount of $549,000 and $28,000 has been transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned):

- Enhance research activities examining the metabolism and physiology of extremely thermophilic (high temperature loving) bacteria.
- Studies on the metabolic capacities of plants to synthesize hydrocarbons and carbohydrates will be emphasized.
- Continue to support graduate research training in specific sub-areas that will offer numerous future scientific and career opportunities.
- Encourage new approaches to study the development and function of plant roots critical for the use of suboptimal/contaminated soils for bioresource production.
- Biophysical and structural analyses of photosynthetic apparatus in plants and bacteria will continue to focus on establishing the precise molecular mechanisms involved.
- Initiate studies on the role of membranes in bioenergetic conversions and transport.
- Funding in the amount of $562,000 and $42,000 has been budgeted for the SBIR and STTR programs, respectively.

III. **Performance Summary: ENERGY BIOSCIENCES (Cont'd)**

FY 1997 Planned Accomplishments:

- Initiate genomic analysis of critical sections of the genetic material from the model plant, *Arabidopsis*.
- Reduce activities focusing on describing molecular genetic regulatory strategies in plants and on the mechanisms involved in plant/pathogen interactions.
- Microbial physiological studies will be augmented in order to continue to develop this underpopulated area and to take advantage of a number of new scientific opportunities.
- Integrate knowledge of biochemical pathways to determine mechanisms regulating the overall flux of fixed carbon.
- Initiate activities to determine the role of intracellular localization/compartmentalization on metabolic processes.
- Funding in the amount of $705,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

Research on the mechanisms involved in plant/pathogen interactions will be reduced along with studies aimed at describing molecular genetic regulatory strategies in plants ($-515,000).

BASIC ENERGY SCIENCES

RELATED CAPITAL FUNDING
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The Related Capital Funding subprogram funds General Plant Projects (GPP), Accelerator and Reactor Improvements (AIP), and Capital Equipment in support of the BES research program.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
General Plant Projects (GPP)	$ 11,412	$ 6,415	$ 9,275	$+ 2,860	+ 44.6%
Accelerator and Reactor Improvements (AIP)	7,449	7,500	9,840	+ 2,340	+ 31.2%
Capital Equipment	39,873	49,016	45,695	- 3,321	- 6.8%
Total, Related Capital Funding	$ 58,734	$ 62,931	$ 64,810	$+ 1,879	+ 3.0%

III. Performance Summary:

FY 1995 Accomplishments:

- Funding was provided for equipment in support of areas of high priority in the research programs, general purpose equipment requirements, and areas which required ES&H attention.

- GPP funding was provided for minor new construction, other capital alterations and additions, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

III. **Performance Summary: RELATED CAPITAL FUNDING (Cont'd)**

- o AIP funding supported additions and modifications to accelerator and reactor facilities which are supported by the BES research program.

FY 1996 Accomplishments (to date and planned):

- o Funding will be provided for equipment in support of areas of high priority in the research program, general purpose equipment requirements, and areas which required ES&H attention. Increased funding in support of the Advanced Photon Source and the User Facility Initiative.

- o GPP funding will be provided for minor new construction, other capital alterations and additions, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

- o AIP funding will support additions and modifications to accelerator and reactor facilities which are supported by the BES research program. The total estimated cost of each project will not exceed $2,000,000.

FY 1997 Planned Accomplishments:

- o Funding will be provided for equipment in support of areas of high priority in the research programs, general purpose equipment requirements, and areas which require ES&H attention. Decrease reflects reduced requirements in support of the Advanced Photon Source.

- o GPP funding will be increased for minor new construction, other capital alterations and additions, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

- o AIP funding will support additions and modifications to accelerator and reactor facilities which are supported by the BES research program.

III. **Performance Summary: RELATED CAPITAL FUNDING (Cont'd)**

Explanation of Funding Changes FY 1996 to FY 1997:

The reduction in capital equipment funding is due to decreased ($-4,666,000) funding necessary to support the Advanced Photon Source and an increase ($+1,345,000) in GPE for ORNL ($-3,321,000).

GPP funding will be increased to support landlord responsibilities at Oak Ridge National Laboratory ($+2,860,000).

The increase in AIP funding is due to the completion of one project over the $2,000,000 threshold at LBNL in FY 1996. These funds are now included in the under $2,000,000 category ($+2,340,000).

CONSTRUCTION
(Tabular dollars in thousands, Narrative in whole dollars)

I. **Mission Supporting Goals and Objectives:**

Construction is needed to support the research in each of the subprograms in the Basic Energy Sciences program. Experiments necessary in support of basic research require that state-of-the-art facilities be built or existing facilities modified to meet unique research requirements. Reactors, radiation sources, and neutron sources are among the expensive, but necessary, facilities required. The budget for the BES program includes funding for the construction and modification of these facilities.

II. **Funding Schedule:**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Construction	$ 58,379	$ 9,986	$ 11,500	$+ 1,514	+ 15.2%
Total, Construction	$ 58,379	$ 9,986	$ 11,500	$+ 1,514	+ 15.2%

III. **Performance Summary:**

FY 1995 Accomplishments:

- Provided necessary funds to continue construction of the Advanced Photon Source at the approved schedule.

FY 1996 Accomplishments (to date and planned):

- Complete funding of the Advanced Photon Source consistent with the approved schedule.
- Provided the continued funding to complete (in 4 years) the Combustion Research Facility, Phase II.
- Funding for Accelerator and Reactor Improvements and Modifications in excess of $2,000,000 is provided for a liquid hydrogen cold source at the High Flux Isotope Reactor (HFIR) and an insertion device at the Advanced Light Source (ALS).

III. **Performance Summary: CONSTRUCTION (Cont'd)**

FY 1997 Planned Accomplishments:

- Continue construction of the Combustion Research Facility, Phase II at the approved schedule.
- Continue funding for construction of the Accelerator and Reactor Improvement (AIP) liquid hydrogen cold source project at the High Flux Isotope Reactor (HFIR).

Explanation of Funding Changes FY 1996 to FY 1997:

- The increase ($+1,514,000) is the net result of: completion of the Advanced Photon Source ($-3,186,000); the scheduled increase in the construction of the Combustion Research Facility, Phase II ($+7,000,000); and completion of the AIP project at LBNL ($-2,300,000).

MAJOR USER FACILITIES
(Tabular dollars in thousands, Narrative in whole dollars)

I. **Mission Supporting Goals and Objectives:**

The goal of the National User Facilities is to provide experimental capabilities which cannot otherwise be achieved in individual laboratories. These facilities are constructed and operated to support energy-related research, but are available to all qualified scientists based on the merit of their proposed experiments.

There were about 4,500 users in FY 1995 of Basic Energy Sciences-funded national user facilities. They conducted forefront research in materials, chemical, earth, biological, health, medical and other sciences. The costs for the construction and the environmentally acceptable and safe outside user-friendly operation of these world class facilities are substantially beyond the capability of the academic and private industrial sectors. The facilities are made available to all qualified users from the academic and private industrial sectors, and both DOE and non-DOE government laboratories. They thus permit the Nation's science and technology enterprise to have access to research instruments that are required for world-competitive cutting edge forefront research that would not otherwise be possible. All of the Basic Energy Sciences national user facilities have been constructed within cost, on schedule, and with rigorous compliance to all environmental, safety, and health regulations.

II. **Funding Schedule: MAJOR USER FACILITIES** (Cont'd)

Funding for these facilities is provided in the Materials Sciences and Chemical Sciences subprograms.

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
National Synchrotron Light Source	$ 23,491	$ 26,599	$ 26,915	$+ 316	+ 1.2%
High Flux Beam Reactor	21,100	23,732	24,060	+ 328	+ 1.4%
Intense Pulsed Neutron Source	6,800	10,867	10,970	+ 103	+ 0.9%
High Flux Isotope Reactor	24,248	26,925	27,165	+ 240	+ 0.9%
Radiochemical Engineering Development Center	7,070	7,234	7,310	+ 76	+ 1.0%
Stanford Synchrotron Radiation Laboratory	13,487	17,658	17,795	+ 137	+ 0.8%
Manuel Lujan, Jr. Neutron Scattering Center	0	6,688	6,740	+ 52	+ 0.8%
Combustion Research Facility	4,171	4,402	4,445	+ 43	+ 1.0%
Advanced Light Source	21,200	28,616	28,945	+ 329	+ 1.1%
Advanced Photon Source	64,771	78,671	80,000	+ 1,329	+ 1.7%
Undesignated	1,304	5,115	0	- 5,115	-100.0%
Total, Major User Facilities	$ 187,642	$ 236,507	$ 234,345	$- 2,162	- 0.9%

FY 1995 Accomplishments:

- Thousands of experiments have been carried out on the various unique synchrotron beam lines that are dedicated to myriad experiments of importance to many disciplines at the National Synchrotron Light Source, Stanford Synchrotron Radiation Laboratory and the Advanced Light Source. They have provided progress in the understanding of catalysis and surface reactions, chemical bond characterization, the atomic structure of materials, trace chemical analysis as well as the structure of highly charged atomic ions.

- Commissioning of the Advanced Photon Source Storage Ring has begun and a circulating current of 8.5 milliamperes was achieved resulting in the first x-ray beams at this third generation x-ray source. The design current is 100 milliamperes.

III. **Performance Summary: MAJOR USER FACILITIES** (Cont'd)

- Experiments for the characterization of residual stress in manufactured parts, crystalline structure and excitation of solids such as high temperature superconductors, magnetic materials, neutron radiation damage, materials important in structural biology and hydrogen containing materials such as polymers, were carried out at the High Flux Beam Reactor and the High Flux Isotope Reactor.

- Several new beamlines, insertion devices and specialized end stations are being developed for implementation at the Advanced Light Source and the Advanced Photon Source.

- The narrow-gap undulator concept was successfully tested at the National Synchrotron Light Source, which will enhance the energy range which can be provided to users at NSLS.

- Tests of a prototype commercial gas burner at the Combustion Research Facility has led to improved design of a low NO_x emission burner.

FY 1996 Accomplishments (to date and planned):

- The existing National User Facilities will operate more effectively (in some cases with substantial increases in operating hours, and in others, with the implementation of modern state-of-the-art instrumentation which will use the neutron and photon beams more effectively) with more experiments and more users as a consequence of the President's User Facility Initiative.

- Thousands of experiments will be carried out on the various unique synchrotron beam lines that are dedicated to myriad experiments at the National Synchrotron Light Source, Stanford Synchrotron Radiation Laboratory and the Advanced Light Source. The first experiments will be carried out on the Advanced Photon Source.

- Experiments for the characterization of residual stress, magnetic structure and excitations, neutron irradiation damage and hydrogen containing materials will be carried out at the High Flux Beam Reactor and the High Flux Isotope Reactor.

- Additional beamlines will be implemented at the Advanced Light Source and the Advanced Photon Source. Instrumentation at NSLS, SSRL, IPNS, HFBR and HFIR will be upgraded. LANSCE will resume operations.

III. **Performance Summary: MAJOR USER FACILITIES (Cont'd)**

FY 1997 Planned Accomplishments:

- The National User Facilities will continue to operate much more effectively with more experiments and more users as a consequence of the President's User Facility Initiative which will be sustained in FY 1997.
- Beamlines at the National Synchrotron Light Source and the Stanford Synchrotron Radiation Laboratory will be upgraded with modern state-of-the-art instrumentation to make more effective use of these unique x-ray sources.
- Operation of the Advanced Photon Source will be initiated.
- New beamlines will be built at the Advanced Light Source and the Advanced Photon Source in FY 1997 including insertion devices to produce circularly polarized x-ray beams.
- Advanced experiments for the characterization of residual stress, magnetic structure and excitations, neutron irradiation damage and hydrogen containing materials will be carried out at the High Flux Beam Reactor and the High Flux Isotope Reactor.

Explanation of Funding Changes FY 1996 to FY 1997:

- Overall operating time at user facilities will be maintained at slightly below the FY 1996 level ($-2,162,000).

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BASIC ENERGY SCIENCES
CAPITAL OPERATING EXPENSES AND CONSTRUCTION SUMMARY
(Dollars in thousands)

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Operating Expenses					
General Plant Projects (total)	$11,412	$6,415	$9,275	$+2,860	+44.6%
AIP under $2 million (total)	7,449	7500	9,840	+2,340	+31.2%
Capital Equipment (total)	39,873	49,016	45,695	-3,321	-6.8%

Construction Project Summary (both Operating and Construction Funded)

Project No.	Project Title	TEC	Previous Appropriated	FY 1995 Appropriated	FY 1996 Appropriated	FY 1997 Request	Unapprop. Balance
97-E-305	Accelerator and Reactor Improvements & Modifications, Various Locations	$2,500	$0	$0	$4,800	$2,500	$0
96-E-300	Combustion Research Facility, Phase II, SNL	26,800	4,800	0	2,000	9,000	11,000
89-R-402	6-7 GeV Synchrotron Radiation Source, ANL	467,178	405,613	58,379	3,186	0	0
Total Basic Energy Sciences		$XXXXX	$410,413	$58,379	$9,986	$11,500	$11,000

Detailed Breakouts	Total CDR Cost	Previous Appropriated	FY 1995 Appropriated	FY 1996 Appropriated	FY 1997 Request	Unapprop. Balance
CDR's - Exceeding $3 million						
1. Pulsed Spallation Neutron Source	$15,635	$0	$0	$7,635	$8,000	$0

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Basic Energy Sciences

1.	Title and Location of Project: Accelerator and Reactor Improvements and Modifications, various locations	2a.	Project No. 97-E-305
		2b.	Construction Funded
3a.	Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1996	5.	Previous Cost Estimate: None
			Total Estimated Cost (TEC): None
3b.	A-E Work (Title I & II) Duration: Months vary per project		Total Project Cost (TPC): None
4a.	Date Physical Construction Starts: 3rd Qtr. FY 1997	6.	Current Cost Estimate:
			TEC -- $ 2,500
4b.	Date Construction Ends: 3rd Qtr. FY 1999		TPC -- $ 2,500

7. Financial Schedule: (Federal Funds)

Fiscal Year	Appropriation	Obligations	Costs
1997	$ 2,500	$ 2,500	$ 1,500
1998	0	0	1,000
1999	0	0	0

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1.	Title and Location of Project: Accelerator and Reactor Improvements and Modifications, various locations	2a.	Project No. 97-E-305
		2b.	Construction Funded

8. Project Description, Justification and Scope

This project provides for additions and modifications to accelerator and reactor facilities, which are supported by the Basic Energy Sciences program. Since program priorities and needs change, the projects described below indicate the most likely projects to be funded.

The following are the projected items of work to be performed at the various locations. Since needs and priorities may change, other projects may be substituted for the examples listed below, and some of these may be located on non-Government owned property.

a. High Flux Isotope Reactor (ORNL)..... $ 2,500

Install a liquid hydrogen cold source in an existing beam port at the High Flux Isotope Reactor (HFIR). The cold source will provide a cold neutron brightness as good or better than that of the Institute Laue Langevin, the world's premier cold neutron facility. The proposed HFIR facility will provide the United States with unsurpassed capabilities in this rapidly expanding area of neutron sciences. The estimated cost to design, construct and install the cold source is $5,000,000, $2,500,000 in FY 1996 and $2,500,000 in FY 1997.

9. Details of Cost Estimate

a. Engineering, design, and inspection and component assembly and installation.....	$ 2,500
Total line item cost.....	$ 2,500

10. Method of Performance

Design, engineering and inspection will be performed by Oak Ridge National Laboratory. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congrssional Budget Request are denoted with vertical line in left margin)

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Basic Energy Sciences

1. Title and Location of Project: Combustion Research Facility, Phase II
Sandia National Laboratories
Livermore, California

2a. Project No. 96-E-300
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr., FY 1988

3b. A-E Work (Titles I & II) Duration : 12 months

4a. Date Physical Construction Starts: 4th Qtr., FY 1988

4b. Date Construction Ends: 4th Qtr., FY 1999

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

6. Current Cost Estimate:
TEC -- $26,800
TPC -- $30,020

7. Financial Schedule: (Federal Funds)

Fiscal Year	Appropriation	Obligations	Costs
Prior Years a/	$ 4,800	$ 4,800	$ 4,205
1995	0	0	4
1996	2,000	2,000	1,700
1997	9,000	9,000	9,400
1998	7,000	7,000	6,800
1999	4,000	4,000	4,691

a/ Prior year funds transferred from 87-R-405.

1.	Title and Location of Project:	Combustion Research Facility, Phase II Sandia National Laboratories Livermore, California	2a. 2b.	Project No. 96-E-300 Construction Funded

8. Project Description, Justification and Scope

Phase II of the Combustion Research Facility (CRF) will add approximately 32,300 gross square feet to the existing 51,100 square-foot multibuilding CRF facility (Project No. 78-13-B, TEC $9.4 million) at Sandia National Laboratories, Livermore (SNL/L). Phase II will add 21,200 square feet to the existing 16,400 square-foot laboratory building and 11,100 square feet to the existing 25,000 square-foot office building. The project will include such site modifications and improvements as yard paving, walkways, landscaping, fencing, signage, and east entrance road relocation.

The project has been delayed due to budget constraints from FY 1989 through FY 1995. The appropriations totaling $4.8 million in FY 1987 and FY 1988 were used for site preparation and design and construction of the shell of the laboratory building addition. The appropriations in FY 1996-FY 1999 will complete the balance of the project.

The laboratory building addition will be an L-shaped extension to the south and east of the existing building. Construction of the addition will match the existing building in architectural style, materials, and finishes, color, and floor-to-floor heights. The laboratory building addition will provide sixteen new laboratory spaces and two facility laser laboratories. The new facility laser rooms will be connected to serve any Lab in the facility, via the Laser Duct and Periscope System.

Once-through conditioned ventilation will be provided from existing building fans for existing and new laboratory spaces to carry off fuel gases or vapors and products of combustion, with systems included to minimize the discharge of contaminants to the atmosphere. An electronic safety monitoring and control system will provide back-up to the ventilation system.

The existing system of ducts used for diagnostic laser beam transmission from the central laser rooms will be extended to all new laboratories. Other existing building systems such as power distribution, lighting, communications, security alarms, fire and evacuation alarms, automatic fire sprinkler, and piping and plumbing will also be extended to the addition.

The office building addition will provide space for thirty-four new offices, an open office secretarial and file area, computer terminal rooms, and conference rooms. The addition will be a two-story wing added to the north of the existing office building and will match it in architectural style, materials and finishes, color, and floor-to-floor height.

1.	Title and Location of Project:	Combustion Research Facility, Phase II Sandia National Laboratories Livermore, California	2a. 2b.	Project No. 96-E-300 Construction Funded

8. Project Description, Justification and Scope (Continued)

Design of the existing mechanical building allowed space for the expansion of some services. Included in this project will be an additional chiller, pumps, and heat exchangers. Additional fan equipment providing recirculated conditioned air for the laboratory building and its addition will be in the loft space above the laboratory buildings. An additional electrical substation and process-cooling water system will also be provided.

Existing site utilities such as domestic and fire protection water, sanitary sewer, natural gas, site lighting, and electrical power and special systems will be modified and extended to service the additional facilities.

A key feature of the Combustion Research Facility is the availability of specially designed lasers for optical diagnostics. The Facility lasers developed in Phase I will continue to be used, and will be supplemented by two new Facility lasers: a high-power pulsed, high-repetition rate tunable ultraviolet laser (UV) and a subpicosecond laser. The laser beam directing system will be extended so that the existing and new laboratories have the capability of receiving the beam from any of the Facility lasers.

Other equipment includes a gas-chromatograph-mass spectrometer, infrared, visible, and ultraviolet spectrometers, elemental analyzers, optical signal processing equipment, and fast laser image processing devices.

Existing equipment from current facilities at SNL/L will be relocated to eleven of the new labs, although some of these experiments will be modified and some equipment will be upgraded. Two labs will be furnished with new equipment within the project TEC, and three labs will be furnished with new equipment by future users of the facilities.

This project will add vitally needed capacity and important new capabilities to the Combustion Research Facility at SNL, Livermore. The principal objective of this construction is to provide combustion research resources that can adequately deal with the critical needs of the 1990s and beyond. To accomplish this goal requires the addition of a new laboratory wing that emphasizes centralized next-generation laser diagnostic facilities and specially designed laboratories not available in CRF Phase I.

1.	Title and Location of Project:	Combustion Research Facility, Phase II Sandia National Laboratories Livermore, California	2a. 2b.	Project No. 96-E-300 Construction Funded

8. Project Description, Justification and Scope (Continued)

The overall scope of this project is the doubling of space available for experiments. Equipment funds are required for a new central laser system and special purpose laboratory equipment. A modest enlargement of the office building is included to house the rapidly increasing population of visiting scientists. These enhancements will consolidate the combustion-related resources at a single site readily accessible to visiting scientists.

There is a continuing need for the CRF to advance combustion-related science and technology to a higher level. The improvements included in the Phase II project will address this need. For example, special lasers and equipment will be developed to provide the ability to measure quantitatively entire two- and three-dimensional images of a system's physical and chemical properties with better resolution, and far greater speed than is now possible. It is this type of advance in the science of combustion that will allow the pursuit of the increasingly more difficult and complex problems that face our country.

CRF Phase II will enable attacking many complex problems directly associated with combustion. An important example is the need for improved combustion processes that incorporate high efficiency together with minimum production of pollutants such as NO_x and air toxics. Rapid progress on these problems both in engines and in furnaces requires Phase II's next-generation diagnostic capabilities. Completion of Phase II will also enable using the tools and expertise developed in Phase I to address broader challenges facing the country. CRF basic research in laser diagnostics, for example, will underpin remote sensing applications that contribute to global-change research and to nonproliferation of weapons. Basic research in chemically reacting flows will continue to support improved U.S. competitiveness in semiconductor processing and will support the development of new industrial materials. Basic research in chemistry will address new processes, such as supercritical water oxidation, for destroying hazardous wastes with minimal environmental impact.

The implementation of Phase II will develop and make available a new class of lasers. Phase II will include a specially designed high repetition rate laser system. This laser will be optimized for laser photochemistry combustion research and for high speed planar imaging of transient combustion phenomena. A second laser system will be designed to study combustion phenomena occurring on extremely short time scales (subpicosecond time scales). The new laser systems will enable significant extension of our knowledge in a broad range of topics in fundamental combustion science.

1.	Title and Location of Project:	Combustion Research Facility, Phase II Sandia National Laboratories Livermore, California	2a. 2b.	Project No. 96-E-300 Construction Funded

8. Project Description, Justification and Scope (Continued)

The normal increase in both the quantity and sophistication of combustion research by Sandia staff, together with the heightened requirements of visiting scientists, have completely saturated the facilities provided under CRF Phase I. During the past ten years the number of scientists who visit the CRF long enough to participate in research has almost tripled. In fiscal year 1993 forty professional staff hosted eighty nine such visits. Many important experiments cannot be carried out in the existing facilities because of a lack of space. Access to the unique capabilities of the CRF (such as the Facility lasers and computer resources) is essential for studying trade-offs between combustion efficiency and the pollution that results from existing and alternative fuels. However, much of the combustion research and diagnostics development work at Sandia is currently being done in facilities that are widely scattered throughout Sandia/CA where the researchers do not have access to these unique capabilities. Additional laboratories will permit the consolidation of these experiments at the CRF, thus providing the necessary access to the unique capabilities at the Facility. It will also provide adequate space and ready access to visiting scientists.

The number of offices required to support visiting researchers and staff must also be increased as each year of operation brings a large number of requests from qualified researchers to do work here who stay longer.

This addition is crucial to continuation of the lead role the CRF now plays in developing, improving, and applying advanced research methods for combustion science. As a result of successful technology transfer from the CRF to visiting scientists, there has been a significant advance in the research methods practiced by the combustion community. Given the increasingly difficult challenges faced in the use of fuel resources, the CRF mission must continue to emphasize advancing the frontiers of combustion science.

Without Phase II the technology at the CRF will stagnate, and opportunities for important new scientific research will be missed. The major advances in lasers and computers will not be brought to bear on pressing problems, nor made available to combustion researchers and designers in this country. CRF Phase II is also crucial to the success of programs in combustion research and diagnostics development. Currently, progress is hampered by the fractionation of the research effort. A significant amount of the experimental activities are housed in other buildings without direct access to the Facility lasers and other resources. Some of the activities are in security areas where it is difficult or impossible for uncleared visiting researchers to work. Moreover, the major portion of the diagnostics research is housed in a converted warehouse; it is essential that this activity be moved to an area that provides cleaner air, better temperature control, improved safety, access to the Facility lasers, and unrestricted availability to users.

1.	Title and Location of Project:	Combustion Research Facility, Phase II Sandia National Laboratories Livermore, California	2a. 2b.	Project No. 96-E-300 Construction Funded

Finally, without the Phase II addition to the Facility, the size of the visiting scientist (user) program will have to be curtailed, due to the saturation of laboratory and office space. As a result, the ability for the combustion community to move on to more complex, yet realistically important research topics, will be constrained.

The $9 million of FY 1997 funds will be used in part for completing project management, construction management, and inspection of the 11,100 square foot office addition. The remainder of the funds will be used to complete design, place a construction contract, and initiate construction for the 21,200 square foot laboratory expansion and mechanical building modification.

9. Details of Cost Estimate	Unit Cost	Item Cost	Total Cost
a. Engineering, design, and inspection (ED&I)			$3,100
1. Engineering, design, and inspection at approximately 15 percent of construction		2,050	
2. Construction management costs		500	
3. Project management		550	
b. Construction costs			14,610
1. Improvements to land		1,010	
Paving, walkways, landscaping, fencing, signage, road relocation parking lot rearrangement			
2. Buildings		12,800	
(a) Office Building (11,000 SF $190/SF)	2,300		
(b) Laboratory Building (21,200 SF $415/SF)	9,740		
(c) Mechanical Building (Existing)	760		
3. Utilities		800	
Water, sanitary sewer, natural gas, site lighting, electrical power, signal systems			
c. Standard equipment			5,450
Lasers, spectrometers, analyzers, processing equipment			
Subtotal			23,160
d. Contingency at approximately 16 percent of above costs			3,640
Total line item cost			$26,800

9. Details of Cost Estimate: (Continued)

ED&I costs for Title I and II reflect negotiated contract fees. ED&I for Title III is based on a negotiated fee plus an allowance for an extended period of construction, and for escalation. Construction costs and equipment costs have been escalated to mid points of construction and equipment procurement and installation. Escalation rates are in agreement with the DOE Price Change Index dated August 1993 for DOE construction projects, published by the DOE Independent Cost Estimating Staff.

Contingency is judged to be adequate for the remainder of the project. Construction of the laboratory shell was completed in FY 1990. Design was completed for the balance of the construction work in FY 1989. As a result of zero appropriations in FY 1989 through FY 1995 and the consequential schedule extension, some remaining ED&I and Project Management funds will be expended on obsolete Title II design elements prior to going to bid for remaining construction.

10. Method of Performance

Engineering, design, and inspection will be performed under negotiated architect and engineer contracts. Construction, procurement of equipment, and occupancy will be accomplished by fixed price contracts awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	Total
a. Total project funding							
1. Total facility costs							
(a) Line item	$4,205	$ 4	$1,700	$ 9,400	$ 6,800	$4,691	$26,800
Total direct cost	4,205	4	1,700	9,400	6,800	4,691	26,800
2. Other project costs							
(a) Other project costs	220	0	0	500	750	750	2,220
(b) Capital equipment	0	0	0	500	250	250	1,000
Total other project costs	220	0	0	1,000	1,000	1,000	3,220
Total project cost (TPC)	$4,425	$ 4	$1,700	$10,400	$ 7,800	$5,691	$30,020

1. Title and Location of Project:	Combustion Research Facility, Phase II Sandia National Laboratories Livermore, California	2a. Project No. 96-E-300 2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements (Continued)

b. Related annual costs a/ (estimated life of building: 50 years)

1. Facility operating costs	$ 300
2. Programmatic operating expenses directly related the facility	2,400
3. Capital equipment not related to construction but related to the programmatic effort in the facility	400
4. GPP or other construction related to programmatic effort in the facility	200
5. Other costs	0
Total related annual costs	$ 3,300

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project costs:

1. Total facility costs
   (a) Construction Line Item as described in previous items.
2. Other project costs
   (a) Other project costs
   $220,000 of operating funds have been paid to architect engineering firms for preparation of conceptual designs/conceptual design reports and supplemental information for this project. $500,000 in FY 1997, $750,000 in FY 1998, and $750,000 in FY 1999, are operating costs associated with the new facility.
   (b) $500,000 in FY 1997, $250,000 in FY 1998, and $250,000 in FY 1999 is for capital equipment associated with the new facility.

a/ Estimated costs in thousands escalated to 1999-year dollars. The related annual funding displayed is related to CRF, Phase II project only. These amounts are in addition to annual funding for the existing CRF operations ($4,739,000 in the FY 1997 OMB Budget Request).

1. Title and Location of Project:	Combustion Research Facility, Phase II Sandia National Laboratories Livermore, California	2a. Project No. 96-E-300 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (Continued)

b. Related annual costs:

1. Facility operating costs
   This cost represents the annual operating expenses for utilities, maintenance, and janitorial service incurred due to the increase of 32,300 gross square feet in laboratory and office space.
2. Programmatic operating expenses
   Staff increase resulting from this project is estimated to be six people. Costs also include acquisition of computer resources that will serve both resident staff and visiting scientists.
3. Capital equipment not related to construction
   The increase in annual capital equipment is estimated at $400,000. This is in addition to Capital Equipment funds currently allocated to the CRF.
4. Maintenance, repair, GPP or other construction related to programmatic effort
   The annual GPP needs for Phase II are expected to be approximately $200,000. This is in addition to GPP funds presently allocated to the CRF.
5. Other costs
   No other costs are anticipated.

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ENERGY RESEARCH ANALYSES

PROGRAM MISSION

The mission of the Energy Research Analyses (ERA) program is to evaluate the quality and impact of Department of Energy research programs and projects.

The GOAL of the ERA program is to:

Provide Department of Energy program managers and senior managers with objective assessments of research projects and programs in order to evaluate the quality and impact of these efforts, to identify undesirable duplications and gaps, and to provide analysis of key technical issues in support of long range energy research planning, science and technology planning, and technical evaluation of departmental programs and objectives.

The OBJECTIVES related to these goals are:

1. To PROVIDE THE BASIS FOR JUDGMENTS ON THE QUALITY OF RESEARCH AND ITS IMPACT. Using merit review with peer evaluation, provide departmental program managers and their superiors with detailed information about the technical strengths and weaknesses of projects that comprise the R&D program as a basis for judgment of the quality of the research and its impact.

2. To PROVIDE INDEPENDENT VIEWS OF FUTURE R&D NEEDS IN AREAS OF INTEREST TO THE DEPARTMENT. Evaluate the status of science and technology areas of potential importance to the Department's mission, and to lay out appropriate fundamental and applied research and development to hasten the advance towards potential energy applications.

3. To DEVELOP STRATEGIC PLANS. Use advice from outside experts, advisory committees, departmental managers, national laboratory managers, industrial scientists and managers, and officials of other government agencies to formulate strategic plans for the Office of Energy Research and for the Science and Technology business line of the Department.

PROGRAM MISSION - ENERGY RESEARCH ANALYSES (Cont'd)

4. To CONTRIBUTE TO DOE AND INTERAGENCY PROGRAM ANALYSIS AND PLANNING FOR GOVERNMENT SCIENCE AND TECHNOLOGY. Participate in committees, task forces, working groups, and workshops of the Department of Energy and organizations such as the National Science and Technology Council, the National Science Foundation, the National Academy of Sciences, and private sector organizations such as the Industrial Research Institute, and the Electric Power Research Institute.

PERFORMANCE MEASURES:

1. Quality and value of peer review evaluations, as indicated by satisfaction of investigators and program managers and actions taken to improve or replace projects that have significant shortcomings, and to capitalize on the strengths of stronger projects.

2. Satisfaction by customer program managers with assessments of science and technology needs, as indicated by changes or additions to make DOE programs and projects more productive and relevant to DOE missions.

3. Quality and acceptance of strategic plans, as indicated by their use by the Director of the Office of Energy Research and by program offices in multi-year program planning, program budget planning, and in effectively justifying programs.

4. Influence on government science and technology planning and analysis, as indicated by contributions to DOE, interagency, and outside recommendations on science policies and plans.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

1. Independent peer reviews have verified the quality and relevance of over 300 DOE projects and tasks. Assessment of research needs for Advanced Heterogeneous Catalysts for Energy Applications was completed. These levels of effort will be scaled down in FY 1997 to accommodate the reduced funding associated with the Department's realignment of staff and activities.

2. An improved and systematic process for appraisal of Energy Research Laboratories will be developed in FY 1996. Implementation by this program for the Office of Energy research will continue in FY 1997.

3. A new DOE-wide system for simplified technical reviews of National Laboratories has been developed with the participation of all affected parties, including the National Laboratories and DOE Operations Offices. The new system will be tested in a pilot process in FY 1996 at three National Laboratories and implemented across the Department in FY 1997.

PROGRAM MISSION - ENERGY RESEARCH ANALYSES (Cont'd)

4. Developed the Strategic Plan for the Office of Energy Research. Provided science and technology sections of the National Energy Policy Plan (NEPP). Coordinated the formulation of ER technology status reports for the Yergin Task Force.

ENERGY RESEARCH ANALYSES

PROGRAM FUNDING PROFILE

(Dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Research	$3,330	$3,463	-$49	$3,414	$2,000
Subtotal, Energy Research Analyses	3,330	3,463	-49	3,414	2,000
Adjustment	-101 a/	-337 a/	0	-337 a/	0
Total, Energy Research Analyses	$3,229 b/	$3,126	-$49 c/	$3,077	$2,000

a/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program. The total general reduction is applied at the appropriation level.
b/ Excludes $66,000 which has been transferred to the SBIR program and $3,000 which has been transferred to the STTR program.
c/ Reprogramming to the Indian Energy Resources programs.

Public Law Authorizations:
Public Law 95-91 "Department of Energy Organization Act" (1977)

ENERGY RESEARCH ANALYSES

PROGRAM FUNDING BY SITE

(Dollars in thousands)

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Chicago Operations Office					
Argonne National Laboratory	$300	$150	$0	$150	$0
Brookhaven National Laboratory	100	0	0	0	0
Oak Ridge Operations Office					
Oak Ridge National Laboratory	644	200	0	200	0
Richland Operations Office					
Pacific Northwest National Laboratory	465	250	0	250	0
All Other Sites a/	1,821	2,863	-49	2,814	2,000
Subtotal	3,330	3,463	-49	3,414	2,000
Adjustment	-101 b/	-337 b/	0	-337 b/	--
TOTAL	$3,229	$3,126	-$49 c/	$3,077	$2,000

a/ Funding provided to laboratories, universities, industry, other Federal agencies and other miscellaneous contractors.

b/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program. The total general reduction is applied at the appropriation level.

c/ Reprogramming to the Indian Energy Resources programs.

ENERGY RESEARCH ANALYSES
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995		FY 1996		
		Comparable	Non-Comp	Comparable	Non-Comp	FY 1997
	Direct Funding:					
	Personnel compensation:					
11.1	Full-time permanent					
11.3	Other than full-time permanent					
11.5	Other personnel compensation					
11.8	Special personal services payments					
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits					
13.0	Benefits for former personnel					
21.0	Travel and transportation of persons					
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services	252	252	255	255	255
25.2	Other services	453	453	2,276	2,325	1,745
25.3	Purchases of goods and services from Government accounts					
25.4	Operation and maintenance of facilities	1,514	1,514	600	600	
25.5	Research and development contracts					
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment					
32.0	Land and structures					
41.0	Grants, subsidies and contributions	1,177	1,177	0	0	
99.0	Subtotal, obligations	3,396	3,396	3,131	3,180	2,000
	Reimbursable Obligations	-	-	-		
99.9	Total Obligations	3,396	3,396	3,131	3,180	2,000
	Recovery of prior year obligations	-2	-2			
	Unobligated balance avail, start of year	-219	-219	-54	-54	
	Unobligated balance avail, end of year	54	54			
	Budget Authority	$3,229	$3,229	$3,077	$3,126	$2,000

ENERGY RESEARCH ANALYSES

(Tabular dollars in thousands. Narrative in whole dollars.)

I. Mission Supporting Goals and Objectives

The Energy Research Analyses (ERA) program assesses research projects and programs in order to judge the significance of these efforts and to identify undesirable duplications and gaps. Peer reviews of individual research projects using outside experts are performed. Technical assessments to determine the direction of future research and state-of-the-science reviews are also performed. The program also provides analysis in support of long range energy research planning, science and technology planning, and technical evaluation of DOE programs and objectives.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Energy Research Analyses	$ 3,330	$ 3,414	$ 2,000	$ -1,414	-41.4%
Total, Energy Research Analyses	$ 3,330	$ 3,414	$ 2,000	$ -1,414	-41.4%

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III. Performance Summary

FY 1995 Accomplishments:

- Determined the strengths and weaknesses of 300 projects in Energy Research, Fossil Energy, and Energy Efficiency by independent peer review, including quality of the science, relevance to DOE and national missions, and research management.
- Determined the need for new, specific research in the area of Advanced Heterogeneous Catalysts for Energy Applications.
- Provided the DOE support for management of the National Acid Precipitation Program Assessment (NAPAP) Program.

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III. Performance Summary: ENERGY RESEARCH ANALYSES (Cont'd)

- Developed the Strategic Plan for the Office of Energy Research. Provided science and technology sections of the National Energy Policy Plan (NEPP). Coordinated the formulation of ER technology status reports for the Yergin Task Force.

- Analyzed specific governmental and Departmental R&D issues using expert technical groups at the National Academy of Sciences, the Keystone Center, the JASON group, the Foreign Area Science Assessment Center (FASAC), and the Japan Technology Evaluation Center (JTEC).

- Funding in the amount of $66,000 and $3,000 has been transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned)

- Develop a simplified and improved DOE-wide technical review process, as promised by the Secretary of Energy to the Congress. Organize and manage a pilot program at three National Laboratories to evaluate the new review process.

- Evaluate the quality and relevance of approximately 275 projects in Energy Research, Fossil Energy, and Energy Efficiency by independent peer reviews.

- Assess additional technical needs in Energy Research, Fossil Energy, and Energy Efficiency (e.g., advanced composite materials).

- Develop a new and improved Laboratory appraisal process to evaluate the performance of ER Laboratories on an annual basis as part of the Department's new performance-based contracting system.

- Support external R&D review of critical issues, as requested by the Director, Office of Energy Research, through groups outside the Department of Energy, (e.g., the National Academy of Sciences, and the JASON group).

- Funding in the amount of $69,000 and $5,000 has been budgeted for the SBIR and STTR programs, respectively.

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III. **Performance Summary: ENERGY RESEARCH ANALYSES** (Cont'd)

FY 1997 Planned Accomplishments:

- Update and improve the Energy Research Strategic Plan to establish a new vision and mission, and to get maximum research value from, the realigned Office of Energy Research.
- Continue to improve the quality and relevance of DOE research and development programs through peer reviews of approximately 200 projects in Energy Research, Fossil Energy, and Energy Efficiency.
- Evaluate critical planning and policy issues of DOE science and technology through reviews by expert groups at the National Academy of Sciences, the JASON group, etc., as appropriate.
- Funding in the amount of $50,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

The decrease reflects a reduction in the number of peer reviews conducted from 275 in FY 1996 to 200 in FY 1997 ($-1,414,000).

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UNIVERSITY AND SCIENCE EDUCATION

PROGRAM MISSION

The University and Science Education Program (USE) supports activities that utilize the scientific and technical resources of the Department of Energy's laboratories to enhance the development of a diverse, well-educated and scientifically literate workforce. USE's centralized institutional support for the Department's education efforts enables all DOE research and technical program areas to provide hands-on research experiences for students and faculty at the Department's laboratories and minimizes department-wide administrative cost. USE is the lead program for the Department's role in providing support to the national effort to improve science education for all students.

The Office of Laboratory Policy and Infrastructure Management, which reports to the Director of the Office of Energy Research, manages the USE program. The office is responsible for providing leadership and program support necessary to use and leverage the resources of the Department's laboratories to help replenish the pool of scientists and engineers, and to achieve significant, long-term improvements in their science and technology skills, primarily through hands-on experiences at the laboratories.

The GOAL of the University and Science Education Program is to:

Ensure that the Department effectively utilizes and leverages the resources of the DOE laboratory system to support the Department's university and science education mission.

The OBJECTIVES related to this goal are to:

1. Provide opportunities and effective mechanisms for students and faculty to utilize the Department's laboratories for hands-on research experiences.

2. Support increased participation of under-represented populations in science and engineering.

3. Utilize DOE laboratory resources to contribute to systemic science education reform.

PROGRAM MISSION - UNIVERSITY AND SCIENCE EDUCATION (Cont'd)

4. Provide the infrastructure for the Department's laboratory science education programs.

PERFORMANCE MEASURES:

Performance measures for the University and Science Education Program are both qualitative and quantitative. The quality of the program will be measured by improvement in performance of the DOE Laboratory Science Education Programs.

1. Enhanced opportunities at DOE laboratories to improve students/teachers' understanding of science and mathematics.

2. Improved flow of underrepresented students into science and math programs/careers achieved.

3. Cost sharing for program initiatives.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Through the Science and Engineering Research Semester (SERS) nearly 400 undergraduates had the opportunity to spend an academic term working side-by-side with scientists at DOE's national laboratories. In addition to gaining valuable personal experience, these students helped DOE scientists advance their ongoing research.

- The infrastructure supported by the Laboratory Cooperative Program enabled nearly 2000 college and university faculty and students to participate in collaborative hands-on research with the scientists from DOE's national laboratories. Participants in these programs brought fresh ideas to the Department's research endeavors, and carried "state-of-the-art" knowledge and experience from our laboratories back to their universities to infuse into their institutions academic programs. Training provided by the laboratories through Laboratory Cooperative Program workshops and conferences provided an additional 1500 college-level participants with new skills in developing areas of science like parallel computation, an area of computer science in which the laboratories have played a leading role.

- Over 100 undergraduate students and 50 faculty involved in DOE-laboratory partnership efforts with Historically Black Colleges and Universities (HBCU) and other minority institutions participated in hands-on research with DOE laboratory scientists.

PROGRAM MISSION - UNIVERSITY AND SCIENCE EDUCATION (Cont'd)

- Nearly 3000 precollege teachers participated in 52 laboratory-based research participation experiences and over 3500 teachers participated in workshops or institutes at DOE laboratories. DOE's work with teachers and their school systems is clearly beginning to pay dividends. With support of DOE's Princeton Plasma Physics Laboratory's science education reform efforts, the Trenton, New Jersey, public school system reports significantly improved standardized test scores systemwide.

- Recently transferred to the Basic Energy Sciences program in the Office of Energy Research, several significant accomplishments were realized in the Experimental Program to Stimulate Competitive Research (EPSCoR) in FY 1995. DOE/EPSCoR increased the number of state Implementation Awards from seven to nine. Additionally, the integration of DOE/EPSCoR faculty into the larger science community is essential if EPSCoR states are to enhance their funding competitiveness. Over 100 new interactions between DOE scientists and EPSCoR faculty were established over the past year.

- The University Research Instrumentation Program awarded 21 grants in FY 1995. These awards allowed DOE-supported university researchers to purchase unique, state-of-the-art equipment to continue, expand or accelerate existing energy-related research.

- Forty-six grants to colleges and community colleges were awarded for the Pre-Freshman Enrichment Program. The purpose of this program is to introduce science and math-based activities to students in grades 6-10. These students represent populations historically underutilized in science-based careers. Cost-sharing with local businesses and industry is typical.

- As a result of a budget reduction of approximately $42 million and Congressional report guidance, a considerable shift in emphasis has occurred between FY 1995 and FY 1996. In restructuring the program to maximize the resources available to summer and academic-term, laboratory-based research participation activities, precollege science education outreach projects have been reduced from several hundred to fewer than twenty.

- Precollege activities that capitalize on leveraged previous investments and partnerships, and summer and academic laboratory-based research assignments have been continued. While laboratory-based programs are our highest priority, the severity of the FY 1996 budget reductions have also required cutbacks in college level faculty and student intern and collaborative research appointments. No new postdoctoral research fellows are being appointed and substantial reductions were required in support for minority and outreach efforts.

UNIVERSITY AND SCIENCE EDUCATION

PROGRAM FUNDING PROFILE

(Dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Research					
Laboratory Cooperative Program	$29,607	$13,000	$0	$13,000	$13,900
University Programs Operating Expenses	26,423	5,900	0	5,900	6,000
University Research Instrumentation Program	5,431	0	0	0	0
Program Direction	0	1,100 a/	-1,100 b/	0	0
Subtotal University and Science Education	61,461	20,000	-1,100	18,900	19,900
Adjustment	-730 c/	-500 c/	0	-500 c/	0
Total, University and Science Education	$60,731	$19,500	-$1,100	$18,400	$19,900

a/ Up to $1,100,000 was made available for University and Science Education staff severance costs.

b/ Comparability transfer to Energy Research Energy Supply, Research and Development Program Direction.

c/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program. The total general reduction is applied at the appropriation level.

Public Law Authorization:
Pub. Law 95-91, DOE Organization Act (1977)

UNIVERSITY AND SCIENCE EDUCATION
(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office					
Inhalation Toxicology Research Institute	$90	$20	$0	$20	$0
Los Alamos National Laboratory	1,474	440	0	440	500
Sandia National Laboratory	1,487	1,275	0	1,275	1,300
Chicago Operations Office					
Ames Laboratory	428	95	0	95	100
Argonne National Laboratory	5,288	2,255	0	2,255	2,700
Brookhaven National Laboratory	2,063	695	0	695	900
Fermi National Accelerator Laboratory	1,257	355	0	355	350
Princeton Plasma Physics Laboratory	381	300	0	300	300
Golden Field Office					
National Renewable Energy Laboratory	261	50	0	50	50
Idaho Operations Office					
Associated Western Universities	5,194	2,170	0	2,170	2,000
Idaho National Engineering Laboratory	375	120	0	120	150
Oakland Operations Office					
Lawrence Berkeley National Laboratory	2,969	825	0	825	1,050
Lawrence Livermore National Laboratory	1,548	395	0	395	500
Stanford Linear Accelerator Center	183	80	0	80	100
Oak Ridge Operations Office					
Continuous Electron Beam Acc. Facility	593	100	0	100	150
Oak Ridge Institute for Science and Educatio	6,504	3,957	0	3,957	3,700
Oak Ridge National Laboratory	1,420	737	0	737	800
Ohio Field Office					
EG&G Mound App. Technology	100	25	0	25	0
Fernald Env. Res. Mgmt. Corp.	53	0	0	0	0
Richland Operations Office					
Pacific Northwest National Lab	1,411	380	0	380	450
Savannah River Operations Office					
Savannah River Ecology Lab	149	100	0	100	100
Savannah River Tech. Center	95	5	0	5	0
All other sites a/	26,138	5,621	-1,100	4,521	4,700
Subtotal	61,461	20,000	-1,100	18,900	19,900
Adjustment	-730 b/	-500	0	-500	0
TOTAL	$60,731	$19,500	-$1,100	$18,400	$19,900

a/ Funding provided to universities, industry, other federal agencies and other miscellaneous contractors.

b/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program.

UNIVERSITY AND SCIENCE EDUCATION

PROGRAM OBJECT CLASS SUMMARY

(Dollars in thousands)

		FY 1995		FY 1996		
	Direct Funding:	Comparable	Non.-Comp.	Comparable	Non-Comp.	FY 1997
	Personnel compensation:					
11.1	Full-time permanent		$1,509			
11.3	Other than full-time permanent		430			
11.5	Other personnel compensation		23			
11.8	Special personal services payments		0			
11.9	Total personnel compensation	0	1,962	0	0	0
12.1	Civilian personnel benefits		333			
13.0	Benefits for former personnel		0		1,100	
21.0	Travel and transportation of persons		107			
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services	0	531	0	0	0
25.2	Other services	0	235	0	0	0
25.3	Purchases of goods and services from Government accounts					
25.4	Operation and maintenance of facilities	21,742	21,742	8,252	8,252	9,500
25.5	Research and development contracts	13,620	13,620	12,020	12,091	8,550
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment	0	0	0	0	0
32.0	Land and structures	0	0	0	0	0
41.0	Grants, subsidies and contributions	23,347	23,347	250	250	1,850
99.0	Subtotal, obligations	58,709	61,877	20,522	21,693	19,900
	Reimbursable Obligations		-	-		
99.9	Total Obligations	58,709	61,877	20,522	21,693	19,900
	Recovery of prior year obligations	0	0	-25	-25	
	Unobligated balance avail, start of year	-172	-172	-2,097	-2,168	
	Unobligated balance avail, end of year	2,194	2,264			
	Budget Authority	$60,731	$63,969	$18,400	$19,500	$19,900

UNIVERSITY AND SCIENCE EDUCATION

PROGRAM PERFORMANCE SUMMARY
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives

Activities supported by University and Science Education programs ensure the effective utilization of DOE's laboratory system to support the Department's university and science education mission by enhancing the capabilities of faculty and students through hands-on research experiences at DOE national laboratories, by increasing the diversity of the scientific workforce, by utilizing laboratory resources to contribute to systemic science education reform, and by providing the infrastructure for the Department's laboratory-based science education programs.

Laboratory Cooperative Program

The Laboratory Cooperative Program is the Department's primary vehicle for providing faculty and students with access to its national laboratories. The program provides participants with access to state-of-the-art scientific equipment, techniques and ideas and enables them to further develop their critical thinking and analytical skills. The laboratory-based institutional support provided by the Laboratory Coop Program ensures accurate participant placement across all of DOE's research and technical program areas and monitors the quality of their research experiences. Minority students and faculty are particularly sought out and encouraged to participate in the Laboratory Cooperative Program. From the many thousands of applications the Laboratory Cooperative Program receives annually, it is clear that DOE's research participation appointments are highly regarded and that these opportunities play and important role in the science education program of the country.

University Programs

The University Programs subcategory includes support for university-based efforts directed at encouraging more young people, including minorities and women, to pursue energy-related scientific and technical careers. Support is being requested to sustain DOE laboratory minority university alliances as well as other Administration and Congressionally recommended efforts. In addition, funds are being requested to continue the Department's Prefreshman Enrichment Program (PREP) with emphasis on HBCU and minority institutions supporting summer workshops in mathematics, science and engineering on their campuses.

PROGRAM PERFORMANCE SUMMARY (Cont'd)

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Laboratory Cooperative Programs...	$29,607	$13,000	$13,900	$+ 900	+ 6.9%
University Programs.....	26,423	5,900	6,000	+ 100	+ 1.7%
University Research Instr. Program	5,431	0	0	0	0.0%
Total, USE.....	$61,461	$18,900	$19,900	$+ 1,000	+ 5.3%

III. Performance Summary:

FY 1995 Accomplishments

- Nearly 400 undergraduates gained valuable research experience and helped DOE scientists advance the national laboratories ongoing research programs through participation in the academic-year Science and Engineering Research Semester (SERS). An additional 2000 faculty and students participated in collaborative hands-on research during the summer through the Laboratory Cooperative Program. Participants in both programs brought new perspectives to the Department's research endeavors and carried away new skills and ideas to their college and university campuses.

- Laboratory Cooperative Program workshops and conferences provided an additional 1500 college-level participants with new skills in developing areas of science like parallel computation, an area of computer science in which the laboratories have played a leading role.

- Over 100 undergraduate students and 50 faculty from Historically Black Colleges and Universities (HBCU) and other minority institutions participated in hands-on research with DOE laboratory scientists.

- Nearly 3000 precollege teachers participated in 52 laboratory-based research participation experiences and over 3500 teachers participated in laboratory-sponsored education workshops or institutions. Such efforts, like that supported by DOE's Princeton Plasma Physics Laboratory's in Trenton, New Jersey's public school system, has contributed to significantly improved standardized student test scores systemwide.

III. PERFORMANCE SUMMARY (Cont'd)

- The Department of Energy's Experimental Program to Stimulate Competitive Research (EPSCoR) increased the number of state Implementation Awards from seven to nine in FY 1995. Additionally, over 100 new interactions between DOE scientists and EPSCoR faculty were established over the past year thereby helping integrate faculty and students from EPSCoR states into the larger science community.

- Twenty-one University Research Instrumentation awards allowed DOE-supported university researchers to purchase unique, state-of-the-art equipment to further enhance their existing energy-related research projects.

- Through Pre-Freshman Enrichment Program (PREP) grants that are cost shared with local businesses and industry, 46 colleges and community colleges were able to introduce science and math-based activities to grade 6-10 students from minority communities.

- Funding in the amount of $1,078,000 and $54,000 has been transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned):

- In restructuring the program to maximize the resources available to laboratory-based research participation activities, the number of precollege science education outreach projects has been reduced from several hundred to less than twenty. Those precollege activities that remain capitalize on previous investments and partnerships, including education efforts with the National Science Foundation. Despite the positive accomplishments of these precollege activities, these programs are being funded at a significantly reduced levels.

- Due to the severity of the FY 1996 appropriation, support for faculty and student intern and collaborative research appointments, while our highest priority, is being reduced to early 1990 funding levels. No new postdoctoral research fellows are being appointed and significant reductions are necessary in support for congressionally recommended minority and outreach efforts. Cost sharing with other DOE programs is being sought to maintain as many excellent activities as possible at a viable level.

- Funding in the amount of $368,000 and $28,000 has been budgeted for the SBIR and STTR programs, respectively.

III. PERFORMANCE SUMMARY (Cont'd)

FY 1997 Planned Accomplishments:

- Increase the number of undergraduate and graduate participants in the Laboratory Cooperative Education Program by 5%.
- Increase coordination with other DOE programs and improve integration of science education activities.
- Sustain support for high priority Administration and Congressional programs.
- Establish a developmental award program for faculty and students from primarily undergraduate institutions and minority institutions that stimulates collaborations with DOE national laboratory scientific staff and enhances faculty grant competitiveness.
- Increase coordination with other agencies.
- Partner with NSF in support of its Minority Institutes of Excellence program to enhance coordination and effectiveness of support for undergraduate programs at HBCUs.
- Funding in the amount of $498,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

- The increase of $1,000,000 in FY 1997 University and Science Education funding will enable the Department to provide an adequate base program focused on longer term research assignments of undergraduates, graduate students and faculty at DOE laboratories. It also provides a level of science education institutional support that allows DOE's research groups and technical program offices to optimize student and faculty internships and collaborative involvement in ongoing DOE research. This approach is consistent with Congressional guidance, supports the Administration's science education goals, and will result in increased efficiency and effectiveness in carrying out the restructured programmatic initiatives in close collaboration with DOE programs and other agencies, such as NSF.

COMPUTATIONAL AND TECHNOLOGY RESEARCH

PROGRAM MISSION

The mission of the Computational and Technology Research (CTR) program is to perform long-term computational, technology, and advanced energy projects research in support of the goals of the Office of Energy Research strategic plan, and the mission of the Department of Energy (DOE).

The GOAL of the CTR program is to:

Conduct an integrated program in applied mathematical sciences, high performance computing and communications, information infrastructure, advanced energy projects research, and technology research, to address complex problems. Research in forefront and diverse programs is becoming more multidisciplinary and requires new approaches to the solution of these complex problems. The program exploits the capabilities and research skills at universities, national laboratories, and industrial research laboratories. The CTR program provides technical, analytical, and management direction for development, implementation, and evaluation of research programs that include activities from fundamental research to technology development. This includes activities such as High Performance Computing and Communications, the National Information Infrastructure, the Computational Technology program, and the joint Energy Research-Defense Programs DOE 2000 initiative. The Office of Computational and Technology Research also manages the SBIR and STTR programs, contributing additional experience and expertise to CTR program management. The program explores advanced energy concepts at an earlier stage of development than departmental energy technology programs. Technology activities include the cost-shared laboratory Cooperative Research and Development Agreements (CRADAs), technical assistance to small business and the Environmental Technology Partnerships. An effort in Intelligent Energy Processes is an important element in the integrated research program. The program works closely with other Energy Research and departmental programs.

PROGRAM MISSION - COMPUTATIONAL AND TECHNOLOGY RESEARCH (Cont'd)

The OBJECTIVES related to these goals are:

1. To CONTRIBUTE TO SUSTAINABLE ENERGY PRODUCTION AND USE - Conduct research that creates scientific and engineering knowledge in support of Department of Energy mission thrusts to accelerate the utilization and development of energy technologies in a safe and environmentally compatible manner.

2. To PROVIDE WORLD CLASS COMPUTING FACILITIES - Provide and operate major user supercomputer facilities needed for DOE research and foster research partnerships with industry and the entire scientific community. These facilities include the National Energy Research Supercomputer Center (NERSC) at Lawrence Berkeley National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and supercomputer centers that are essential forefront research tools that scientists and engineers use to advance knowledge and develop new products, materials, and manufacturing processes.

3. To ENSURE THAT RESEARCH RESULTS ARE WIDELY KNOWN, VALUED and USED - Promote open communications and the transfer of information and technology among universities, government, and the private sector. Activities include peer-review of research activities, presentation of results at meetings and in peer-reviewed scientific journals, and strong coordination and planning with the energy technology offices of the Department, collocation of researchers, input from all stakeholders, and in-depth workshops and conferences between scientists and engineers with management sponsorship and participation. The national laboratories and universities are unique resources to bring about many of these important interactions.

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MAJOR ACTIVITIES:

1. Mathematical, Information, and Computational Sciences:
Supports forefront, diverse applied mathematical sciences, high performance computing, communications and information infrastructure research that spans the spectrum of activities from strategic fundamental research to technology development and demonstration.

2. Laboratory Technology Research:
Supports high risk, long-term technology research that brings research results to the stage where industry and DOE technology programs can exploit the new technologies.

PROGRAM MISSION - COMPUTATIONAL AND TECHNOLOGY RESEARCH (Cont'd)

3. Advanced Energy Projects:
   Supports research to establish the feasibility of novel, high risk/high payoff energy-related concepts that span the Department's energy mission and goals.

Scientific Facilities Utilization:

The Computational and Technology Research program request includes $28,000,000 in FY 1997 to support the NERSC. This will maintain support of the President's User Facility Initiative in FY 1996. Approximately 12% of this amount is associated with the continuation of the science user facilities initiative contained in the FY 1996 budget request. This investment will provide research time for about 5,000 scientists in universities, Federal agencies, and U.S. companies. It will also leverage both Federally and privately sponsored research, consistent with the Administration's strategy for enhancing the U.S. National science investment. The proposed funding supports the number of users served in FY 1996, which was an increase over FY 1995 levels, and will maintain the quality of service and availability of facility resources to users, including university and government scientists, as well as private companies who rely on unique facilities for their basic research needs. The proposed funding level will also provide for efficient utilization of high technology facilities, which are generally oversubscribed by factors of two to three. Research communities that will benefit from this initiative include structural biology, materials sciences, superconductor technology, medical research and technology development, plasma sciences, and environmental and atmospheric research.

PERFORMANCE MEASURES:

The Department has developed performance measures for the results of its research activities. General performance measures of program outputs for the CTR program include the number of scientists and engineers supported, the number of publications in peer-reviewed journals and the number of awards from professional organizations recognizing major achievements. Metrics for the transfer of new knowledge to a technology application include the number of cooperative agreements with industry, the number of projects resulting in support from a DOE Energy Technology program, the number of invention records and patents, and the number of users at the major computational facilities.

PROGRAM MISSION - COMPUTATIONAL AND TECHNOLOGY RESEARCH (Cont'd)

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- The NERSC has been recompeted to improve program efficiency and will move from Lawrence Livermore National Laboratory to Lawrence Berkeley National Laboratory in FY 1996.
- The conclusion of a number of large scale grand challenge computer modeling projects such as the numerical Tokamak and groundwater transport will result in the refocusing of those resources to support national collaboratories and advanced computational testing and simulation.
- The cooperative funding of the NERSC by the Fusion Energy Sciences program will be assumed by the Mathematical, Information, and Computational Sciences subprogram in FY 1997. The total FY 1997 funding for NERSC is $28,000,000.

COMPUTATIONAL AND TECHNOLOGY RESEARCH

PROGRAM FUNDING PROFILE

(dollars in thousands)

Research	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Mathematical, Information, and Computational Sciences	$ 114,565	$ -	$ 113,140 a/	$ 113,140	$ 118,287
Laboratory Technology Research	46,539	-	17,659 b/	17,659	21,789
Advanced Energy Projects	10,461	-	11,643 a/	11,643	11,492
Related Capital Funding	4,213	-	8,056 a/	8,056	6,575
Subtotal, Computational and Technology Research	175,778	-	150,498	150,498	158,143
Adjustment	- 1,265 c/	-	- 6,141 c/	- 6,141 c/	-
TOTAL, COMPUTATIONAL AND TECHNOLOGY RESEARCH	$ 174,513 d/	$ -	$ 144,357	$ 144,357	$ 158,143

a/ Comparability transfer in from Basic Energy Sciences and Fusion Energy Sciences.

b/ Comparability transfer in from Technology Transfer.

c/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program on a comparable basis. The total general reduction is applied at the appropriation level.

d/ Excludes $3,472,000 which was transferred to the SBIR program and $174,000 which was transferred to the STTR program.

Public Law Authorizations:

Public Law 95-91 "Department of Energy Organization Act" (1977)

COMPUTATIONAL AND TECHNOLOGY RESEARCH
(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office					
Los Alamos National Laboratory	$14,105	$0	$12,907	$12,907	$13,763
Sandia National Laboratories	4,918	0	4,725	4,725	4,269
Chicago Operations Office					
Ames Laboratory	6,053	0	5,341	5,341	4,578
Argonne National Laboratory	20,104	0	12,551	12,551	11,558
Fermi National Accelerator Laboratory	205	0	0	0	0
Brookhaven National Laboratory	8,530	0	3,031	3,031	4,500
Princeton Plasma Physics Laboratory	425	0	0	0	0
Golden Field Office					
National Renewable Energy Laboratory	1,371	0	1,150	1,150	1,000
Idaho Operations Office					
Idaho National Engineering Laboratory	510	0	95	95	0
Oakland Operations Office					
Lawrence Berkeley National Laboratory	15,248	0	30,535	30,535	50,929
Lawrence Livermore National Laboratory	47,738	0	22,534	22,534	1,635
Stanford Linear Accelerator Center	353	0	0	0	
Oak Ridge Operations Office					
Oak Ridge Institute for Science & Education					
Oak Ridge National Laboratory	22,780	0	13,840	13,840	11,969
Continuous Electron Beam Accelerator Facility	669	0	150	150	180
Richland Operations Office					
Pacific Northwest National Laboratory	8,510	0	3,465	3,465	4,400
All Other Sites	24,259	0	40,174	40,174	49,362
Subtotal	175,778	0	150,498	150,498	158,143
Adjustment	-1,265 a/		-6,141	-6,141 a/	0
TOTAL	$174,513	$0	$144,357	$144,357	$158,143

a/ Share of Energy Supply Research and Development general reduction for use of prior year balances assigned to this program on a comparable basis. The total general reduction is applied at the appropriation level.

COMPUTATIONAL AND TECHNOLOGY RESEARCH
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995		FY 1996		
	Direct Funding:	Comparable	Non-Comp	Comparable	Non-Comp.	FY 1997
	Personnel compensation:					
11.1	Full-time permanent					
11.3	Other than full-time permanent					
11.5	Other personnel compensation					
11.8	Special personal services payments					
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits					
13.0	Benefits for former personnel			1,500		
21.0	Travel and transportation of persons					
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services	332		450		600
25.2	Other services	2,891		12,518		22,975
25.3	Purchases of goods and services from Government accounts					
25.4	Operation and maintenance of facilities	147,288		103,375		103,693
25.5	Research and development contracts					
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment	4,213		7,704		6,575
32.0	Land and structures					
41.0	Grants, subsidies and contributions	19,582		19,000		24,300
99.0	Subtotal, obligations	174,306	0	144,547	0	158,143
	Reimbursable Obligations	-	-	-		
99.9	Total Obligations	174,306	0	144,547	0	158,143
	Recovery of prior year obligations	10		-9		
	Unobligated balance avail, start of year	-43		-181		
	Unobligated balance avail, end of year	240				
	Budget Authority	$174,513	$0	$144,357	$0	$158,143

MATHEMATICAL, INFORMATION, AND COMPUTATIONAL SCIENCES
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The Mathematical, Information, and Computational Sciences (MICS) subprogram is a forefront, diverse applied mathematical sciences, high performance computing, communications and information infrastructure program that spans the spectrum of activities from strategic fundamental research to technology development and demonstration. The diverse activities supported by this program are integrated to support two major strategic thrusts: National Collaboratories (NC) and Advanced Computational Testing and Simulation (ACTS). The thrust in National Collaboratories is developing a set of tools and capabilities that will permit scientists and engineers working at different DOE and other facilities to collaborate on solving problems as easily as if they were in the same building. The thrust in Advanced Computational Testing and Simulation is developing an integrated set of algorithms, software tools and infrastructure that will enable computer simulation to better complement experiment and theory or to be used in place of experiments when real experiments are too dangerous, expensive, or inaccessible. These two strategic thrusts support the underlying mathematical concepts and information technology needs of all DOE mission areas (e.g., Fundamental Research, Defense, Energy Efficiency, Environmental and Fossil programs, etc.). The efforts in these areas are closely coordinated with related activities supported by Defense Programs.

The FY 1997 request includes initial funding for the DOE 2000 initiative. This is a joint Energy Research - Defense Programs effort to develop and test a common technology base that supports both National Collaboratories and Advanced Computational Testing and Simulation. Efforts are underway to extend the DOE 2000 initiative to other DOE programs and other agencies as it matures.

The MICS subprogram also supports and responds to the Energy Policy Act (EPACT) and to the High Performance Computing Act of 1991 and provides supercomputer access and advanced communication capabilities, through the Energy Sciences Computer Network (ESnet), to scientific researchers. Finally, the MICS subprogram also serves as an advocate within the Department to formulate and coordinate the Department's National Information Infrastructure (NII) initiative, especially to promote economically beneficial energy-related "National Challenges" applications such as energy demand and supply management and to develop the underlying technologies to enable these applications.

III. Performance Summary: MATHEMATICAL, INFORMATION, AND COMPUTATIONAL SCIENCES (Cont'd)

Performance measures for ACTS include the number of new mathematical algorithms and approaches developed for DOE mission critical application areas, the scope, completeness, and breadth of application of the ACTS software framework, and the acceptance by scientific computing users of ACTS tools. Performance measures for NC include the number of sites supplied with upgraded ESnet services, the scope of deployment of the ESnet-wide security architecture, the number of groups provided with tools for remote access to experimental facilities, and the number of new remote collaboration tools developed and deployed.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Mathematical, Computational, and Computer Sciences Research	$ 51,143	$ 51,240	$ 50,398	$- 842	- 1.6%
Advanced Computation, Communications, and Associated Activities	63,422	61,900	67,889	+ 5,989	+ 9.7%
Total, Mathematical, Information, and Computational Sciences	$114,565	$113,140	$118,287	$+ 5,147	+ 4.5%

III. Performance Summary:

FY 1995 Accomplishments:

- Upgraded ten sites on the Energy Sciences Network (ESnet) to Asynchronous Transfer Mode (ATM) service to improve performance.
- Developed prototype software to allow remote access to Advanced Light Source experiments across ESnet.
- Coordinated definition of a National Collaboratory framework that could be used for both open and secure National Collaboratories.

III. Performance Summary: MATHEMATICAL, INFORMATION, AND COMPUTATIONAL SCIENCES (Cont'd)

- Developed new algorithms for improved simulation of compressible fluid dynamics for use in combustion research, groundwater transport, global climate, and weapons simulations.
- Conducted the largest molecular dynamics simulation in history (1 billion atoms).
- Initiated an interagency project with the Advanced Research Project Agency, the National Aeronautics and Space Administration, and the National Science Foundation on improved Input/Output (I/O) software for massively parallel computers to address a critical issue in the maturation of these technologies.
- Developed two new virtual reality (VR) paradigms for understanding complex scientific data such as materials structures that improve the speed with which scientists can understand results by at least a factor of 10.
- Funding in the amount of $2,146,000 and $107,000 was transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned):

- Upgrade an additional ten sites on ESnet to ATM services.
- Deploy ESnet-wide security architecture and security tools.
- First test of virtual environments linked across a wide area network.
- First deployment to users of software developed to allow remote access to Advanced Light Source experiments across ESnet.
- Coordinate definition (with DOE Defense Programs) of the interfaces that allow new collaborative tools to be incorporated into National Collaboratory framework.
- Add security, privacy, and resource reservation to DOE workstation video/audio and other remote collaboration software.
- Initiate deployment of massively parallel computer in supercomputer access program.

III. Performance Summary: MATHEMATICAL, INFORMATION, AND COMPUTATIONAL SCIENCES (Cont'd)

- o Establish interoperability of virtual reality technologies to explore domains of most advantageous use of these two technologies.
- o Coordinate definition (with DOE Defense Programs) of the interfaces that allow new ACTS tools to be incorporated into a unified ACTS toolkit.
- o Deploy advanced scientific data management technologies to scientific users.
- o Evaluate strategies for producing large applications software packages that can be executed in environments ranging from networks of workstations to the highest performance massively parallel processors available.
- o Funding in the amount of $2,044,000 and $153,000 has been budgeted for the SBIR and STTR programs, respectively.

FY 1997 Planned Accomplishments:

- o Upgrade ESnet bandwidth services to support high speed Program Integration and ACTS applications as part of the DOE 2000 initiative.
- o Integrate existing collaborative tools into National Collaboratory framework.
- o Implement advanced technologies for information security to support flexible administration of resources.
- o Production deployment of remote access software to a number of experimental groups.
- o Address issues of navigation and context in National Collaboratories.
- o Begin preparing one additional DOE experimental facility for remote access.
- o Full deployment of massively parallel computer in supercomputer access program.
- o Integrate most critical existing software tools into ACTS framework as part of the DOE 2000 initiative.

III. Performance Summary: MATHEMATICAL, INFORMATION, AND COMPUTATIONAL SCIENCES (Cont'd)

- Begin development of ACTS-enabled applications development in compressible fluid dynamics/combustion, environmental chemistry, and materials sciences. (This effort is coordinated, as part of the DOE 2000 initiative, with parallel development in DOE Defense Programs of ACTS-enabled applications in weapons hydrodynamics and materials characterization and aging.)

- Funding in the amount of $2,957,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

The net increase in funding ($+5,147,000) is due to enhanced efforts in National Collaboratories and Advanced Computational Testing and Simulation in support of the DOE 2000 initiative

COMPUTATIONAL AND TECHNOLOGY RESEARCH

LABORATORY TECHNOLOGY RESEARCH
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The Laboratory Technology Research subprogram conducts technology research projects in support of Office of Energy Research (ER) goals, as defined by the strategic plan, to reduce technical risk associated with a technology or process development. The program links the basic science at ER national laboratories to applied technologies through leveraged collaborations with industries. The program is focused in critical technology research areas, e.g., intelligent manufacturing processes, tailored materials, and sustainable environments, to contribute technological innovations that will stimulate national economic growth, and to increase the return on the government investment in basic science. For example, research on intelligent processes such as sensor-computer-machine control systems will focus on high risk technological problems for ultimate commercial applications with high payoff. The potential for large payoff is based on the explosive growth in inexpensive computer technologies and the ability to incorporate them into control systems.

Research is conducted through peer-reviewed collaborations, including cost-shared Cooperative Research and Development Agreements (CRADAs), personnel exchanges, technology research and maturation projects, technical assistance/consultations to small business, and major government-industry partnerships with multiple partners.

Performance measures related to laboratory technology research focus on reduction of technical risk. The quality of research is evaluated through peer review, workshops, and site visits. The impact of research output must be assessed in terms of quality of new knowledge gained, its usefulness to subsequent technology development, and its longer term benefit to society. Quantitative performance measures include the level of small business access to ER laboratory expertise, the level of industry cost share, and the number of projects resulting in support from other programs or industry.

II. **Funding Schedule:**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Laboratory Technology Research	$ 46,539	$ 17,659	$ 21,789	$+ 4,130	+ 23.4%
Total, Laboratory Technology Research	$ 46,539	$ 17,659	$ 21,789	$+ 4,130	+ 23.4%

III. Performance Summary:

FY 1995 Accomplishments:

- Continued 62 ongoing multi-year collaboration projects, with 61 new starts.
- Increased technical assistance provided to the entrepreneurial small business sector.
- Increased support for seven AMTEX Partnership projects, with one new start.
- Streamlining of the program and delegation of the merit review process to the laboratories resulted in reduction in CRADA processing time by 50%.
- Concentration of partnerships in laboratory core competencies increased the benefit back to the Department's public missions.
- Environmental research accomplishments included improved treatment processes for toxic metals in ash, recovery of industrial acids for reuse, hazardous waste destruction, and biological treatments for both soil and water remediation.
- Improved DNA sequencing by gel electrophoresis will contribute major cost savings and cut screening times for the Human Genome Project, and for other biomedical and agricultural research projects.
- Improved methodologies for materials characterization, modeling and forming of complex parts, and reduced manufacturing and assembly costs.
- A new coating was developed to protect and extend the life of computer hard disk drives.
- Developed a Variable Frequency Microwave Furnace which was subsequently commercialized and is now being used by DOE researchers to explore innovative methods to break down toxic wastes.

III. Performance Summary: LABORATORY TECHNOLOGY RESEARCH (Cont'd)

- Developed new techniques for the cost-effective machining of ceramics and high-temperature metallic systems that will improve our ability to economically prepare complex parts for harsh environments.

- Funding in the amount of $1,112,000 and $56,000 was transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned):

- Continue support for 90 ongoing multi-year collaboration projects at 5 Energy Research multi-program laboratories (Argonne National Laboratory, Oak Ridge National Laboratory, Brookhaven National Laboratory, Lawrence Berkeley National Laboratory, and Pacific Northwest National Laboratory). No new starts.

- Continue technical assistance/consultations to small businesses.

- Decrease support for the AMTEX Partnership with closure of three projects.

- Eliminate Technology Research activities at five ER single program laboratories (Fermi National Accelerator Laboratory, Ames Laboratory, Princeton Plasma Physics Laboratory, Continuous Electron Beam Accelerator Facility, and Stanford Linear Accelerator Center).

- Funding for severance costs associated with the Technology Partnership Program.

- Funding in the amount of $306,000 and $23,000 has been budgeted for the SBIR and STTR programs.

FY 1997 Planned Accomplishments:

- Continue support for 90 ongoing multi-year collaboration projects in technology research focus areas at 5 ER multi-program laboratories. Includes increased support for intelligent energy processes and computational technology.

- Continue technical assistance/consultations for small businesses.

- Eliminate support for the AMTEX Partnership.

- Funding in the amount of $545,000 has been budgeted for the SBIR program.

III. Performance Summary: LABORATORY TECHNOLOGY RESEARCH (Cont'd)

Explanation of Funding Changes FY 1996 to FY 1997:

- o Increased support for Computational Technology projects (+$3,000,000).
- o Increased support for ongoing multi-year laboratory collaborative projects in technology focus areas including intelligent processes (+$3,217,000).
- o Increased support for technical assistance activities (+$2,413,000).
- o Decrease associated with one-time severance costs in FY 1996 (-$1,500,000).
- o Eliminate support for the AMTEX Partnership (-$3,000,000).

COMPUTATIONAL AND TECHNOLOGY RESEARCH

ADVANCED ENERGY PROJECTS
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives

This activity funds research to establish the feasibility of novel, energy-related concepts that span the Department's energy mission and goals. These concepts are usually derived from recent advances in basic research, but require additional research to establish their feasibility. A common theme for each concept is the initial linkage of new, or previously neglected, research results to a practical energy payoff for the Nation, Efforts are typically supported at a level of $300,000 per year for a period of 3 years. Although the funding profile can vary widely among projects in the Advanced Energy Projects (AEP) research portfolio, the 3-year budget period is considered a maximum. A measure of success is demonstrated if the project attains further funding from another source to realize its full potential. Projects are selected from proposals submitted by universities, industrial organizations, non-profit research institutions, and national laboratories. Equal consideration is given to each submission. Funding criteria include scientific merit as judged by peer review.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Advanced Energy Projects	$ 10,461	$ 11,643	$ 11,492	$- 151	- 1.3%
Total, Advanced Energy Projects	$ 10,461	$ 11,643	$ 11,492	$- 151	- 1.3%

III. Performance Summary:

FY 1995 Accomplishments:

- Developed a novel optical method for mapping oil and gas reservoirs.
- Discovered a technique, using plasma physics, for removing pollutants from diesel engine exhaust gases.

III. Performance Summary: ADVANCED ENERGY PROJECTS (Cont'd)

- Conducted research that could lead to a method for the rapid, but sensitive, determination of the structural integrity of materials in a nuclear reactor environment.
- Funding in the amount of $214,000 and $11,000 was transferred to the SBIR and STTR programs, respectively.

FY 1996 Accomplishments (to date and planned):

- Apply novel materials to a high-efficiency, CFC-free refrigeration technique.
- Explore the feasibility of electrically controlled thin films for windows with adjustable tint.
- Investigate a new material that emits blue laser light for a variety of possible applications, including energy-efficient displays.
- Funding in the amount of $224,000 and $17,000 has been budgeted for the SBIR and STTR programs, respectively.

FY 1997 Planned Accomplishments:

- Develop a novel, and potentially highly-efficient approach for converting methane into heat and a new magnetic material that can be fabricated with small feature sizes for use as micromotors.
- Conduct research on the synthesis and characterization of new materials for energy-efficient, optical imaging.
- Explore research on a solar-powered technique for converting carbon dioxide to methanol.
- Initiate new projects in emerging scientific and technical areas consistent with the priorities of the Office of Energy Research and the Department of Energy mission.
- Funding in the amount of $287,000 has been budgeted for the SBIR program.

III. **Performance Summary: ADVANCED ENERGY PROJECTS (Cont'd)**

Explanation of Funding Changes FY 1996 to FY 1997:

Research will continue at a slightly decreased level ($-151,000).

COMPUTATIONAL AND TECHNOLOGY RESEARCH

RELATED CAPITAL FUNDING
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The Related Capital Funding subprogram funds Capital Equipment in support of the CTR research program.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 4,213	$ 8,056	$6,575	$- 1,481	- 18.4%
Total, Related Capital Funding	$ 4,213	$ 8,056	$6,575	$- 1,481	- 18.4%

III. Performance Summary:

FY 1995 Accomplishments:

- Supported equipment related to High Performance Computing and Communications activities and Advanced Energy Projects such as workstations, small networking equipment, and supercomputer peripheral items.

FY 1996 Accomplishments (to date and planned):

- Support equipment related to High Performance Computing and Communications activities and Advanced Energy Projects such as workstations, small networking equipment, and supercomputer peripheral items.
- Purchase network hardware for the National Energy Research Supercomputer Center at LBNL in the amount of $2,000,000.
- Purchase high speed disks for storage systems at the National Energy Research Supercomputer Center at LBNL in the amount of $2,000,000.

III. **Performance Summary: RELATED CAPITAL FUNDING (Cont'd)**

FY 1997 Planned Accomplishments:

- o Support equipment related to High Performance Computing and Communications and Advanced Energy Projects such as workstations, small networking equipment, and supercomputer peripheral items.
- o Purchase advanced file computer storage hardware at the National Energy Research Supercomputer Center at LBNL in the amount of $2,000,000.

Explanation of Funding Changes FY 1996 to FY 1997:

Decreased funding results from the one-time purchase in FY 1996 of data storage hardware and high speed disk drives in support of the National Energy Research Supercomputer Center at LBNL ($-1,481,000).

COMPUTATIONAL AND TECHNOLOGY RESEARCH
CAPITAL OPERATING EXPENSES AND CONSTRUCTION SUMMARY
(Dollars in thousands)

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Operating Expenses					
Capital Equipment (total)	$4,213	$8,056	$6,575	-$1,481	-18.4%

	TEC	Previous Appropriated	FY 1995 Appropriated	FY 1996 Appropriated	FY 1997 Request	Acceptance Date
Major Items of Equipment (CE $2 million and above & ADP MIE's $1 million and above)						
1. Machine Room Aux. Services and Network - LBNL	$2,000	$0	$0	$2,000	$0	4/96
2. Storage Systems - LBNL	2,000	0	0	2,000	0	3/96
3. Archival Systems Upgrade - LBNL	2,000	0	0	0	2,000	4/97

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MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

PROGRAM MISSION

The Multiprogram Energy Laboratories - Facilities Support (MEL-FS) program supports the Department of Energy's Strategic Plan goal to "Provide the science and technology core competencies that enable DOE's other businesses to succeed in their missions" and the Office of Energy Research Strategic Plan goal to "Sustain scientific leadership and improve U.S. Competitiveness by providing world class scientific facilities and Department of Energy Laboratories, with adequate infrastructure." The MEL-FS program provides general purpose infrastructure funding support to ER multiprogram national laboratories - Argonne National Laboratory - East (ANL-E), Brookhaven National Laboratory (BNL), Lawrence Berkeley National Laboratory (LBNL), Oak Ridge National Laboratory (ORNL), and Pacific Northwest National Laboratory (PNNL). These laboratories have over 1,000 buildings with 13.7 million gross square feet of space and an estimated replacement value of over $10 billion. All facilities at these laboratories are government-owned, contractor-operated (GOCO).

The GOAL of the MEL-FS program is:

To ensure that support facilities can meet the Department's research needs primarily by refurbishing or replacing deteriorated, outmoded, unsafe, and inefficient general purpose infrastructure.

The OBJECTIVES related to these goals are:

1. To CORRECT ES&H INADEQUACIES: Address the highest priority ES&H corrective actions as determined by criteria that include: upgrades to fire protection programs; radiological assistance programs; safety and health training programs; pollution prevention through source reductions, recycling, education, design and process initiatives, and implementation of chemical tracking programs; effluent monitoring; air monitoring; emergency response equipment improvements; underground storage tank compliance. Also provides funds for construction to correct ES&H deficiencies including fire safety improvements, sanitary system upgrades and roof replacements.

2. To PRESERVE THE GOVERNMENT INVESTMENT IN THE PHYSICAL PLANT OF THE LABORATORIES IN ORDER TO SERVE RESEARCH AND DEVELOPMENT MISSION ACTIVITIES IN AN EFFICIENT AND EFFECTIVE MANNER: Provide funds for construction to renovate or replace inefficient and unreliable general purpose buildings and infrastructure.

PROGRAM MISSION - MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT (Cont'd)

3. To REDUCE THE BACKLOG OF FACILITY DEFICIENCIES AND INSTITUTIONALIZE THE PLANNING FOR INFRASTRUCTURE NEEDS: Support program planning, management, and maintenance activities which include facility condition assessments, life-cycle asset management planning, site development planning, and preparation of annual reports required by Section 2203(d) of the Energy Policy Act of 1992.

4. To CLEANUP, REMOVE, OR TRANSFER INACTIVE SURPLUS ORPHAN FACILITIES: Modify and/or dispose of facilities in a comprehensive and systematic manner in order to reduce surveillance and maintenance costs, eliminate ES&H liabilities, and provide for better utilization of space and land.

PERFORMANCE MEASURES:

Performance measures related to the MEL-FS program are continuously being refined to ensure they 1) incorporate external/internal customers' inputs, 2) drive performance, 3) address the strategic plan, and 4) focus on the effectiveness of the laboratory system. Current performance measures include:

1. The percentage of high priority ES&H needs met.

2. The square feet of substandard building space rehabilitated or eliminated compared with the total square feet of substandard building space.

3. The cumulative average of maintenance backlog amounts for each year of the contract period compared with the baseline maintenance backlog.

4. The number of inactive/surplus facilities disposed.

5. The cost savings associated with renovating versus new construction for activities within the inactive/surplus facilities subprogram.

6. The percentage of projects completed within baseline cost and schedule.

PROGRAM MISSION - MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT (Cont'd)

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Progress in Line Item Projects - Four subprojects were completed in FY 1995. Five subprojects are scheduled for completion in FY 1996. The four subprojects scheduled for completion in FY 1997 are the Applied Science Center at Brookhaven National Laboratory, Phase II Fire Safety Improvements at Argonne National Laboratory, the Multiprogram Laboratory Rehabilitation at Pacific Northwest National Laboratory, and the Phase I Fire and Safety Systems Upgrades at Lawrence Berkeley National Laboratory.

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995		FY 1996		FY 1997
		Comparable	Non.-Comp.	Comparable	Non-Comp.	
	Direct Funding:					
	Personnel compensation:					
11.1	Full-time permanent					
11.3	Other than full-time permanent					
11.5	Other personnel compensation					
11.8	Special personal services payments					
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits					
13.0	Benefits for former personnel					
21.0	Travel and transportation of persons					
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services					
25.2	Other services			52	91	
25.3	Purchases of goods and services from Government accounts					
25.4	Operation and maintenance of facilities	6,929	6,929	6,682	6,682	7,448
25.5	Research and development contracts					
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment	500	6,287	0	0	177
32.0	Land and structures	18,579	28,243	27,449	27,449	21,260
41.0	Grants, subsidies and contributions					
99.0	Subtotal, obligations	26,008	41,459	34,183	34,222	28,885
	Reimbursable Obligations	-	-	-		
99.9	Total Obligations	26,008	41,459	34,183	34,222	28,885
	Recovery of prior year obligations	-2	-2	-4,263	-4,188	
	Unobligated balance avail, start of year	-935	-2,425	-78	-117	
	Unobligated balance avail, end of year	2,301	2,340			
	Budget Authority	$27,372	$41,372	$29,842	$29,917	$28,885

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MULTIPROGRAM ENERGY LABORATORIES – FACILITIES SUPPORT

PROGRAM FUNDING PROFILE

(Dollars in thousands)

Research	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Infrastructure Support	$6,955	$6,656	$0	$6,656	$7,448
Related Capital Funding	500	0	0	0	177
Subtotal Research	7,455	6,656	0	6,656	7,625
Construction	21,247	27,449	0	27,449	21,260
Subtotal Multiprogram Energy Laboratories – Facilities Support	28,702	34,105	0	34,105	28,885
Adjustment	-1,330 a/	-4,188 b/	-75 c/	-4,263 d/	0
TOTAL	$27,372 e/	$29,917	-$75	$29,842	$28,885

a/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program. The total general reduction is applied at the appropriation level.

b/ Reprogrammed from prior year projects.

c/ Reprogrammed to the Indian Energy Resources programs.

d/ $4,263,068 was reprogrammed from prior year projects. Those funds were distributed as follows: $711,900 was added to FY 1996 line item funding; $3,476,168 was used to offset the general reduction for use of prior year balances; and $75,000 was provided for Indian Energy Resources programs.

e/ Excludes $142,000 which has been transferred to the SBIR program and $7,000 which has been transferred to the STTR program.

Public Law Authorizations:

Public Law 95-91, "Department of Energy Organization Act" (1977)

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT
(Dollars in thousands)
PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Chicago Operations Office					
Argonne National Lab (East)	$6,371	$8,622	$0	$8,622	$6,198
Brookhaven National Laboratory	7,782	9,875	0	9,875	13,262
Oakland Operations Office					
Lawrence Berkeley National Laboratory	6,183	5,823	0	5,823	1,330
Oak Ridge Operations Office					
Oak Ridge National Laboratory	4,264	3,934	0	3,934	2,635
Richland Operations Office					
Pacific Northwest National Laboratory	3,870	4,740	0	4,740	5,090
All Other Sites a/	232	1,111	0	1,111	370
Subtotal	28,702	34,105	0	34,105	28,885
Adjustment	-1,330 b/	-4,188 c/	-75 d/	-4,263 e/	0
TOTAL	$27,372	$29,917	-$75	$29,842	$28,885

a/ Funding provided to industry, other Federal agencies and other miscellaneous contractors.

b/ Share of Energy Supply, Research and Development general reduction for use of prior year balances assigned to this program. The total reduction is applied at the appropriation level.

c/ Reprogrammed from prior year projects.

d/ Reprogrammed to the Indian Energy Resources programs.

e/ $4,263,068 was reprogrammed from prior year projects. Those funds were distributed as follows: $711,900 was added to FY 1996 line item funding; $3,476,168 was used to offset general reduction for use of prior year balances: and $75,000 was provided for Indian Energy Resources programs.

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

INFRASTRUCTURE SUPPORT
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

General Purpose Facility (GPF) activities support the planning, management, and maintenance activities needed by the laboratories to better identify and prioritize infrastructure requirements. These activities include development and implementation of the site facilities planning systems such as facility condition assessments, life-cycle asset management planning, site development planning, Facilities Information Management System, etc. The research funds also support efforts to integrate requirements across laboratories such as those required by the Energy Policy Act (EPACT). Section 2203(d) of this Act requires annual submission of a "plan for conducting future facility maintenance, making repairs, modifications and new additions and constructing new facilities at multiprogram energy laboratories." The research funds further support site-wide maintenance needs related to general purpose facilities.

The Environment, Safety and Health (ES&H) Support activities provide support to correct the highest priority ES&H deficiencies identified in the ES&H Management Plan. The Department undertook a thorough review of the environment, safety and health (ES&H) compliance at its laboratories and has identified deficiencies in the annual DOE ES&H Management Plan. Deficiencies have been identified in the environmental area (e.g., air, water, hazardous materials), and in occupational safety and health, fire protection, emergency preparedness safety and hazards analyses, conduct of operations, configuration management, work practices and radiation protection.

Inactive and Surplus Facilities activities support the Department's policy to maintain only those facilities necessary to effectively and economically perform assigned missions and tasks. It supports this policy by:

- removing inactive/retired facilities that cannot be economically maintained or renovated to house current or planned activities.

- cleaning up inactive areas of operating facilities that pose an operational and liability concern if reused.

- preparing contaminated facilities that qualify for clean-up by EM for transfer.

As research program technologies change over the course of time, some existing general purpose facilities (or portions of them) have become permanently inactive. These facilities must be cleaned up if they are to be reused, or removed if they are determined to be surplus.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
General Purpose Facilities	$ 584	$ 0	$ 485	$+ 485	--
Environment, Safety & Health Support	5,881	6,656	6,478	- 178	- 2.7%
Inactive and Surplus Facilities	490	0	485	+ 485	--
Total, Infrastructure Support	$ 6,955	$ 6,656	$ 7,448	$+ 792	+ 11.9%

III. Performance Summary:

FY 1995 Accomplishments:

- o Increased support for the most critical and highest priority actions and compliance issues identified in the ES&H Management Planning process. Examples are: pollution prevention activities including source reduction; operating permit development; upgrades in environmental monitoring practices and procedures; enhanced hazard assessment and risk prioritization; OSHA workplace improvements; and wildland fire control.

- o Proactively addressed the highest priority cross-laboratory ES&H issues such as identifying and transferring "noteworthy practices" and promoting needed process improvements in high priority areas such as pollution prevention.

- o Eight facilities (21,000 s.f.) were removed thereby eliminating ES&H liabilities and reducing surveillance and maintenance costs. In addition, characterization and disposition of orphan waste and chemicals were performed in two facilities; and two facilities were rehabilitated which allowed for the reuse of 5100 s.f. of inactive shop and laboratory space. One of these rehabilitation projects involved removal of contaminated ventilation ducting in building 331, Inhalation Toxicology Suite, at Pacific Northwest National Laboratory and returned 2700 s.f. of inactive laboratory space to operational status.

- o Held workshops with the DOE site and operations offices, and the laboratories focused on developing a common set of facility management performance measures, improving communications by defining common terminology and establishing expectations and roles of all offices and laboratories.

- o EPACT: EPACT Section 2203(b) "Supporting Research and Technical Analysis": Provided architectural and engineering contractor support to aid in the preparation of a facility policy and plan for the multiprogram energy laboratories as required by Section 2203(d) of the Energy Policy Act of 1992.

III. Performance Summary: Infrastructure Support (Cont'd)

- o Provided support to laboratories for infrastructure planning and management activities, such as support for developing and implementing facility condition assessment surveys and life-cycle asset management planning.

- o Funding in the amount of $142,000 and $7,000 has been transferred to the SBIR program and the STTR program, respectively.

FY 1996 Accomplishments (to date and planned):

- o Continue to support the highest priority actions and compliance issues identified in the ES&H management planning process including: electrical service upgrades, site hydrogeological assessment, natural hazard mitigation, asbestos characterization and remediation, worker safety enhancement, fuel storage and transfer facility upgrade, fire and life safety vegetation management, seismic safety anchors for building systems, perchloric acid hood decontamination, and implementation of 10 CFR 835.

- o Funding in the amount of $133,000 and $10,000 has been budgeted for the SBIR program and the STTR program, respectively.

FY 1997 Planned Accomplishments:

- o Continue to address the highest priority actions and compliance issues identified in the ES&H management planning process including: laser access control, communication equipment upgrade, non-reactor nuclear facility safety documentation, Clean Air Act compliance, 480 volt conduit deficiency correction, ozone depleting substance reduction, underground storage tank removal/replacement, nuclear criticality safety upgrade, and pollution prevention activities.

- o Continue support to determine clean-up/demolition/transfer requirements for high priority contaminated facilities which will be transferred to EM; remove inactive surplus facilities that cannot be transferred to EM; and clean-up/renovate inactive space to return it to operational status.

- o Continue workshops with the DOE site and operations offices, and the laboratories to improve facility management performance measures and communications.

- o Continue to prepare annual update of facilities plan for the multiprogram energy laboratories as required by Section 2203(d) of the Energy Policy Act of 1992.

III. Performance Summary: Infrastructure Support (Cont'd)

- o Continue to provide support to laboratories for infrastructure planning and facility management activities including support for implementing the DOE Facilities Information Management Systems (FIMS), facility condition assessment survey activities, life-cycle asset management planning, and the site development planning process, as well as site-wide maintenance needs related to general purpose facilities.

- o Funding in the amount of $186,000 has been budgeted for the SBIR program.

Explanation of Funding Changes FY 1996 to FY 1997:

- o The increase is for GPF and Inactive and Surplus Facilities activities that had been eliminated in FY 1996 ($+792,000).

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MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT

RELATED CAPITAL FUNDING
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

This subprogram provides funding to support capital equipment needs related to ES&H activities at the Energy Research multiprogram national laboratories.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Environment, Safety and Health Equipment . .	$ 500	$ 0	$+ 177	$+ 177	-
Total, Related Capital Funding	$ 500	$ 0	$+ 177	$+ 177	-

III. Performance Summary:

FY 1995 Accomplishments:

o Provided general funds for replacement, upgrade and improvement in health physics equipment and in environmental monitoring as identified in the ES&H Management Plan. Representative examples included: radio transition equipment, site perimeter modeling system, wildland fire management equipment, CFC replacement equipment, and alpha/beta/gamma counter, a mobile filter/dewatering unit, equipment for a photochemical waste stream, and replacement tanks for underground storage tanks.

FY 1996 Accomplishments (to date and planned):

o No activity.

III. **Performance Summary: (Cont'd)**

FY 1997 Planned Accomplishments:

o Continue reducing the backlog of deficiencies by upgrading health physics and environmental monitoring equipment as identified in the ES&H Management Plan. Representative examples will include: purchasing of radio transition equipment, pH conductivity equipment, and oxygen meters; replacing a liquid scintillation system and a halon system; and upgrading an emergency preparation paging system, a dosimetry system, and an exhaust systems.

Explanation of Funding Changes FY 1996 to FY 1997:

o The increase in ES&H equipment reflects the restart of funding after no activity in FY 1996 (+$177,000).

CONSTRUCTION
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

This subprogram supports the Program's goal to refurbish or replace inadequate general purpose facilities and infrastructure that support research needs. Facility deficiencies are due to age, obsolescence, extensive use and changing requirements, including Environment, Safety and Health Requirements. This subprogram achieves this by funding line item construction projects (i.e., projects with a total estimated cost of $2 million or above) for general purpose facilities. General purpose facilities are general use, service and support facilities such as administrative space, cafeterias, general office/laboratory space, utility systems, sanitary sewers, roads, etc. There are over 1,000 buildings at the six laboratories covered by this program. These buildings have over 14,000,000 gross square feet of space. Approximately half of the space is considered fully adequate, while the remainder needs rehabilitation or replacement/demolition. The large percentage of inadequate space reflects the age of the facilities (30 years or older), changing research needs that require more office space and light laboratory space, environmental, safety and health requirements and obsolete systems.

Capital investment requirements are identified in laboratory Institutional Plans which address needs over a five year planning horizon based on expected programmatic support. The MEL-FS program has prepared a 5-year program plan that identifies projects totaling over $425 million for the five year period. Forty one percent of this amount is to rehab or replace buildings; 35% is for utility projects; and 24% for environment, safety and health projects. All projects are first ranked using the Capital Assets Management Process Prioritization Model. The projects that have environment, safety and health as the principal driver are further prioritized using the Risk Prioritization Model from the DOE ES&H Management Plan process.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
General Purpose Facilities	$ 13,409	$ 12,975	$ 6,960	$- 6,015	- 46.3%
ES&H	7,838	14,474	14,300	- 174	- 1.2%
Total, Construction	$ 21,247	$ 27,449	$ 21,260	$- 6,189	- 22.5%

III. Performance Summary: Construction (Cont'd)

FY 1995 Accomplishments:

o Supported completion/continuation of five Environment, Safety, and Health subprojects consistent with planned schedules and initiation of three new subprojects - a fire safety project, a sanitary system upgrade and a loss prevention upgrade.

o Supported completion/continuation of six General Purpose Facility subprojects consistent with planned schedules and initiation of four new subprojects including one electrical safety project and three building rehab/upgrades. The square footage of new replacement lab and office space is 17,500 square feet.

FY 1996 Accomplishments (to date and planned):

o Support completion/continuation of six Environment, Safety and Health subprojects consistent with planned schedules and initiation of three new subprojects including rehab of hot cells and support systems at BNL, building electrical service upgrade at ANL-E and sanitary sewer restoration at LBNL.

o Supports completion/continuation of eight General Purpose Facility projects.

o No new subprojects initiated.

FY 1997 Planned Accomplishments:

o Support completion/continuation of six Environment, Safety and Health subprojects.

o Supports completion/continuation of three General Purpose Facility subprojects. One ongoing subproject (ORNL Roofing) is not funded delaying completion.

o No new subprojects initiated.

Explanation of Funding Changes FY 1996 to FY 1997:

o The decrease in funding is a result of the overall decrease in MEL-FS program funding. Funding at this level results in one ongoing project (Roofing Improvements, ORNL) not being funded and no new project starts ($-6,189,000).

MULTIPROGRAM ENERGY LABORATORIES – FACILITIES SUPPORT
CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY
(Dollars in thousands)

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Operating Expenses					
Capital Equipment (total).....	$500	$0	$177	$+177	–

Construction Project Summary (both Operating and Construction Funded)

Project No.	Project Title	TEC	Previous Appropriated	FY 1995 Appropriated	FY 1996 Appropriated	FY 1997 Request	Unapprop. Balance
MEL–001	Multiprogram Energy Laboratories Infrastructure Project	N/A	$27,856	$21,247	$27,449	$21,260	$20,579
	Total Multiprogram Energy Laboratories – Facilities Support	$XXX,XXX	$27,856	$21,247	$27,449	$21,260	$20,579

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

Multiprogram Energy Laboratories - Facilities Support

1. Title and Location of Project: Multiprogram Energy Laboratories Infrastructure Project, Various Locations

2a. Project No. MEL-001
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): Varies by subproject

3b. A-E Work (Title I & II) Duration: 6-12 Months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- N/A
Total Project Cost (TPC) -- N/A

4a. Date Physical Construction Starts: See subproject details

4b. Date Construction Ends: See subproject details

6. Current Cost Estimate:
TEC -- N/A
TPC -- N/A

7. Financial Schedule: (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Cost
Prior Years	$ 27,856		$ 27,856	$ 20,000
FY 1995	21,247	-1,380 a/	19,867	16,858
FY 1996	27,449		27,449	26,000
FY 1997	21,260		21,260	27,000
Future Years	20,579		20,579	27,153

a/ Reflects $1,328,000 for this program's share of the Energy Supply, Research and Development reduction for use of prior year balances and $52,000 for the Departmental reprogramming.

1. Title and Location of Project:	Multiprogram Energy Laboratories Infrastructure Project Various Locations	2a. Project No. MEL-001 2b. Construction Funded

Project Description, Justification and Scope

This project funds two types of subprojects:

- Projects to correct ES&H deficiencies including fire safety improvements, sanitary system upgrades and electrical system replacements; and

- Projects that renovate or replace inefficient and unreliable general purpose facilities (GPF) including general use, service and support facilities such as administrative space, cafeterias, utility systems, and roads.

General Purpose Facility Projects:

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Central Heating Plant Rehab, I (ANL)	$9,880	$9,500	$ 0	$1,307	$2,631	$2,500	$3,442	3rd Qtr FY 1996	2nd Qtr FY 1999

This project supports rehabilitation/upgrade of central heating plant systems and components that are no longer adequate, efficient or reliable.

Assessments have identified existing conditions at the central heating plant that do not meet current health, safety and environmental protection standards. Phase I will provide the most urgently needed rehabilitation/upgrade, including (as needed): boilers, boiler auxiliaries, deaerators, condensate tanks, material transport, piping valves, pollution control equipment, etc.

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1. Title and Location of Project: Multiprogram Energy Laboratories
Infrastructure Project
Various Locations

2a. Project No. MEL-001
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Electrical Safety Rehab (PNNL)	4,740	6,800	0	240	1,500	1,500	0	4th Qtr FY 1995	3rd Qtr FY 1998

This project will provide for the rehabilitation of electrical systems and correction of numerous National Electrical Code (NEC) violations in various Energy Research buildings in the 300 areas of the Hanford Site.

Many of the buildings range in age from 20 to 40 years and electrical equipment and installations contained within them do not meet NEC and DOE standards and criteria for safe and efficient operations. This project will safeguard personnel working with the DOE facility electrical systems and enhance the reliability of those systems.

Multiprogram Laboratory Rehab, I (PNNL)	6,100	6,100	0	400	2,740	2,960	0	2nd Qtr FY 1996	4th Qtr FY 1997

This project is part of the Multiprogram Energy Laboratory - Facilities Support Program mission to modernize and renovate aging PNL multiprogram laboratory facilities. This project will involve the remodeling of the 3rd floor of building 331 and construction of a new facility for small animal quarters.

Leading research programs are increasing emphasis on cellular/modular studies and changing use of animal models for the dose-response studies to those which use in vitro/in vivo approaches. As a result, small animal physical facilities need to be renovated or replaced by additional laboratory facilities in which molecular biology and biochemical research can be carried out. This project responds to this new approach.

1. Title and Location of Project: Multiprogram Energy Laboratories Infrastructure Project, Various Locations

2a. Project No. MEL-001

2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
East Canyon Electrical Safety Project (LBNL)	3,854	3,754	2,754	1,000	100	0	0	2nd Qtr FY 1994	3rd Qtr FY 1996

The project is the third of several rehabilitation elements that are part of a master plan to improve the reliability of the electrical distribution system of the entire laboratory. The project will utilize the new circuit breakers provided in FY 1987 by the improvements to the main substation. A new 12kV switching station and new 12kV distribution circuits to laboratory facilities in the East site area will be installed, as will a new 500 kVA substation with standby generation at the National Center for Electron Microscopy.

The existing 12kV power system has major deficiencies. There is no redundancy, so a cable fault will cause extended power outage. There is no ground fault protection, which would result in a loss of power to the entire East Site. Since there is no redundancy, preventive maintenance operations can only be accomplished during scheduled shutdowns of the entire East Site. The power cable is reaching the end of its useful life (21 years of a 25 years maximum) and should be replaced. A new substation at the National Center for Electron Microscopy is required to provide an independent power supply system to this major research facility. Power outages adversely affect the operation of the electron microscopes, requiring long time periods for adjustment and re-calibration of these major scientific instruments.

Safety Compliance Mod., Bldg. 326 (PNNL)	8,540	8,540	6,640	1,900	0	0	0	3rd Qtr FY 1993	2nd Qtr FY 1995

The project brings the 326 Building, which was an aged but strategically important laboratory, into compliance with National Fire Protection Association (NFPA) requirements, National Electric Code requirements, and State of Washington requirements. Since its construction in 1952, the building has been in continuous use. Although the building was structurally sound, it did not meet today's building codes and standards of acceptability for health and safety.

1. Title and Location of Project:	Multiprogram Energy Laboratories Infrastructure Project Various Locations	2a. Project No. MEL-001 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The project now clearly defines the egress pathways from the facility, provide fire resistant stairwells and exit corridors, extensively upgrade the building electrical system to comply with the National Electric code including replacement of most of the electrical distribution system, installation of a new motor control center, installation of backflow prevention on the fire main to meet State of Washington requirements, installation of handicap facilities, installation of full wet-pipe sprinklers to comply with NFPA requirements, and other modifications to meet code requirements.

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Electrical System Upgrade Phase II (ANL)	5,044	4,839	2,796	2,043	205	0	0	3rd Qtr FY 1994	1st Qtr FY 1996

The project supports the upgrade of the main electrical distribution system and major components in the 200 area.

Due to the age of the electrical system, malfunctions have occurred. As maintenance of the switches is becoming increasingly difficult due to a scarcity of spare parts, a complete replacement is recommended to ensure safe, reliable and continuous operation of ongoing research. The new system will employ state of the art technology.

Potable Water System Upgrade, Phase I (BNL)	5,320	5,320	3,457	1,863	0	0	0	2nd Qtr FY 1994	4th Qtr FY 1995

This project began necessary upgrades of the potable water system at Brookhaven National Laboratory. It supported the first of several phases of an overall planned program to rehabilitate and improve the water supply and insure that an adequate supply of good quality water is available beyond the year 2000.

The existing nine potable water wells dated back to 1941. The three oldest wells have been decommissioned because of volatile organic contamination. Only one did not show signs of contamination. The remaining well is capable of producing only half of the water requirements for the laboratory. Steps had to be taken to insure a safe, adequate supply of water into the future. Five carbon absorption filtration units were installed on wells 4, 6, 7, and 12. Eight thousand feet of cast iron piping and 1,750 feet of transite pipe was replaced. The water main was extended approximately 4,000 feet to sewage treatment plant for potable water and fire protection.

1. Title and Location of Project	Multiprogram Energy Laboratories Infrastructure Project Various Locations	2a. Project No. MEL-001 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Fuel Storage and Transfer Facility Upgrade (BNL)	3,600	3,600	681	2,479	440	0	0	2nd Qtr FY 1995	3rd Qtr FY 1996

This project will upgrade the existing fuel storage and transfer facility to bring it into compliance with local and state code for handling and storage of fuel oil.

This facility will consist of fuel transfer facility enclosure with unloading booms and fire detection and protection systems. This facility will be constructed on a diked containment area equipped with leak detection systems and oil/water separator. The enclosure will be approximately 5,600 square feet.

Roofing Improvements (ORNL)	16,000	16,000	3,136	197	2,089	0	10,578	2nd Qtr FY 1994	2nd Qtr FY 2000

This project supports replacement of deteriorated roofing on buildings and facilities throughout ORNL. Requirements are prioritized and those in the worst condition and housing the most critical equipment and activities will have the highest priority.

The purpose of this project is to replace deteriorated roofing on buildings and facilities at ORNL. Seventy percent of the roofs have been in place for more than 20 years. Because of age and deterioration, many of the roofs have developed leaks and require extensive maintenance. This project is needed before leakage problems reach the point that they affect equipment, records and research activities as well as the health and safety of personnel working in the facilities.

1. Title and Location of Project: Multiprogram Energy Laboratories Infrastructure Project, Various Locations

2a. Project No: MEL-001
2b. Construction Funded

8 Project Description, Justification and Scope (Continued)

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Applied Science Center Phase I (BNL)	3,870	3,870	0	600	3,270	0	0	2nd Qtr FY 1996	2nd Qtr FY 1997

The proposed addition to the Department of Applied Science (DAS) building will provide approximately 12,000 sq. ft. of laboratory, office and support space. The addition will be a two-story structure with an underground passageway. The first floor will be devoted principally to laboratory space with some space for offices, darkroom and bathrooms. The second floor will principally be office space with some space dedicated for a library, lunch room, etc.

The purpose of this project is to consolidate and upgrade the Department's space to alleviate the fragmentation of approximately 240 in-house DAS staff, supplemented at peak periods by research collaborating students and consultants. This fragmentation reduces the efficiency, management and opportunities for the exchange of information.

ES&H PROJECTS:

Fire Safety Improvements, II (ANL)	5,350	5,350	1,215	1,500	2,411	224	0	1st Qtr FY 1994	1st Qtr FY 1997

This project will encompass fire protection system extensions, new installations, and system replacement in 80 existing ANL-E buildings. This phase will complete the upgrading of existing fire alarm and suppression systems and expand fire suppression systems.

1. Title and Location of Project: Multiprogram Energy Laboratories
Infrastructure Project
Various Locations

2a. Project No. MEL-001
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Fire Safety Improvements, III (ANL)	3,003	2,880	0	210	1,075	1,000	718	2nd Qtr FY 1996	4th Qtr FY 1998

This project encompasses the third phase of site wide fire safety modifications at ANL. This phase involves correction of "means of egress" deficiencies and fire separation/fire protection of building elements.

This project is proposed as part of ANL's 1991 Action Plan developed in response to ES&H findings and is required to correct existing fire and life safety deficiencies.

Sanitary System Mod. II (BNL)	4,250	3,772	0	960	1,690	1,032	568	1st Qtr FY 1996	4th Qtr FY 1998

This project is the second phase of the upgrade of the laboratory sanitary waste system. This project continues with replacement of the balance of defective sewer lines and implements treatment plant building improvements. This phase will include: replacement of approximately 15,440 linear feet of defective sewer pipe; and demolishing the Hyperchlorite Building (No. 576), the Barminator Building (No. 583), and the Influent Measuring Building (No, 584), which are plywood structures. These structures will be replaced with masonry structures. Service Building (No. 575), which is a lunch and spare parts trailer, will be replaced with a masonry addition.

The purpose of this project is to eliminate or minimize present and future infiltration to groundwater and exfiltration to the sewage collection system, to replace structures not presently meeting OSHA and NEC Codes.

1. Title and Location of Project: Multiprogram Energy Laboratories
Infrastructure Project
Various Locations

2a. Project No. MEL-001
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Loss Prevention Upgrades (BNL)	7,700	7,020	0	600	2,480	4,620	0	4th Qtr FY 1996	3rd Qtr FY 1998

This project provides for the upgrade of approximately 96 existing substations. With respect to fire protection, the project includes: relocating transformers; replacing oil-filled transformers with dry type; replacing oil-filled transformers with less flammable fluid; fire stand pipes and hose stations; fire deluge systems; dry chemical extinguishing systems; fire walls and barriers; wire glass; fire seals; relocating combustible materials and trailers; curbing; and oil retention pits. With respect to substation enclosures, work includes: extending existing fence to proper heights; new fence to replace deteriorating fence; new fence for relocated transformers; replacing fences at proper clearances; non-combustible door for vaults; panic hardware on vault doors; and protective screens. With respect to grounding, work includes: replacing deteriorating ground cable; new grounding for relocated substations; ground jumpers for gates; equipment grounds and reshaping arrestor grounding.

The purpose of this project is to minimize potential harmful situations to personnel and to minimize the potential loss of property and experimental program time due to fire. The sites' vulnerability was assessed as a result of ES&H findings.

Building Electrical Service Upgrade, I (ANL)	7,617	7,430	0	0	1,200	1,144	5,273	2nd Qtr FY 1997	4th Qtr FY 1999

This project will provide the most urgently needed replacement of emergency generators and the upgrade of building's main electrical services (circuit breaker retrofits, bus duct replacement and emergency generator replacements) that are no longer adequate, reliable, efficient, or in accordance with existing electrical codes/standards and environment, safety and health standards.

Failure to fund this project would increase frequency and duration of general maintenance resulting in increased parts and labor costs, negative impact on scientific programs and non-compliance with safety regulations.

1. Title and Location of Project: Multiprogram Energy Laboratories
Infrastructure Project
Various Locations

2a. Project No. MEL-001
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Hot Lab Renovation, Bldg 801 (BNL)	7,080	6,370	0	0	800	6,280	0	2nd Qtr FY 1997	4th Qtr FY 1998

This project, in the west side of Building 801 (the Hot Lab), is part of a comprehensive effort to: upgrade the production of radionuclides and radiopharmaceuticals for supply to the pharmaceutical/medical community outside the laboratory; upgrade major research program leading to new and more effective diagnostic and therapeutic agents; comply with DOE Order 5820.2A, which requires that the generation of low-level radioactive waste be reduced; and bring Brookhaven National Laboratory (BNL) into conformance with Federal, state, and local environmental laws and regulatory requirements. The unique location of BNL over an EPA designated "sole-source" aquifer has heightened regulatory concern over potential ground water contamination from BNL facilities.

Failure to fund this project would increase the potential for ground water contamination and non-compliance with safety regulations.

Roof Replacement Phase I (BNL)	2,873	2,873	2,773	100	0	0	0	4th Qtr FY 1993	4th Qtr FY 1995

This project supported roof replacement on buildings at BNL. Approximately 263,000 sq. ft. of re-roofing was accomplished during this phase.

Roof surveys conducted in 1989 have indicated that approximately 718,000 sq. ft. of roofing on 46 buildings will have to be replaced. This project represents Phase I.

1. Title and Location of Project: Multiprogram Energy Laboratories Infrastructure Project, Various Locations

2a. Project No. MEL-001
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Life Safety Code Compliance (PNNL)	1,970	1,970	1,464	506	0	0	0	1st Qtr FY 1994	4th Qtr FY 1995

This project supported upgrades to selected 300 area PNNL multiprogram facilities. These upgrades correct deficiencies in fire and life safety codes.

The project ensures continuity of operations in vital multiprogram laboratories at PNNL. The conditions of the buildings had raised many concerns about their adequacy for continuing operations. PNNL's research missions can be continued by completing the work proposed in this project.

Fire and Safety Systems Upgrade Phase I (LBNL)	4,600	4,600	1,470	2,000	1,130	0	0	2nd Qtr FY 1994	3rd Qtr FY 1997

This project is the first of several which will bring LBNL facilities into compliance with building, fire and life safety codes.

A majority of facilities at LBNL were constructed from the 1940s to the mid 1960s. The facilities provided national scientific leadership during a historically significant time. Since this period, major changes have occurred in building, fire and life safety codes. This project will support modifications required to meet new codes and correct noncompliance conditions.

1. Title and Location of Project: Multiprogram Energy Laboratories
Infrastructure Project
Various Locations

2a. Project No. MEL-001
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

	TEC	Prev.	Prior Year	FY 1995	FY 1996	FY 1997	Future Years	Start Date	End Date
Hazardous Materials Safeguards Phase I (LBNL)	4,720	4,720	1,470	1,962	1,288	0	0	3rd Qtr FY 1994	2nd Qtr FY 1996

Project scope modified due to reduction of hazardous materials stored in Building 70. Reduction achieved through use of off-site storage. Modifications include: deletion of chemical delivery system; ventilation system upgrades; and central monitoring and alarm system. This project will upgrade Building 70 to add safety, health and environmental protection safeguards to meet or exceed current standards for public health and safety.

The existing Building 70 is an aged laboratory facility used for materials sciences and semi-conductor research. These operations employ a wide variety of chemicals which are highly flammable and/or toxic. If this project is not supported, research operations must be restricted, resulting in curtailing or eliminating fields of research at LBNL.

Sanitary Sewer Restoration Phase I (LBNL)	2,400	2,400	0	0	2,400	0	0	3rd Qtr FY 1997	4th Qtr FY 1998

Portions of the underground sanitary sewer system will be replaced based upon video camera surveys of site sanitary sewer lines, including approximately 3,480 feet of sanitary sewer lines ranging in diameter from three (3) inches to eight (8) inches. Soil samples will be tested during construction for possible contamination. All excavated material that is contaminated will be either remediated or removed to an authorized hazardous waste site.

Failure to fund this project would increase the potential for ground water contamination, excessive maintenance costs, and non-compliance with safety regulations.

1. Title and Location of Project:	Multiprogram Energy Laboratories Infrastructure Project Various Locations	2a. Project No. MEL-001 2b. Construction Funded

9. Details of Cost Estimate

Based on preliminary or conceptual design.

10. Method of Performance

Design will be by negotiated architect-engineer contracts or laboratory personnel. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts awarded on the basis of competitive bids.

ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION

PROGRAM MISSION

This Program has been established in response to direction from the Congress that within each appropriation, each organization should have only one program direction decision unit for Federal staffing resources and related costs. Energy Research-Energy Supply Program Direction provides the Federal staffing resources and associated funding required to provide overall direction of activities carried out under the following programs: Biological and Environmental Research, Fusion Energy Sciences, Basic Energy Sciences, Computational and Technology Research, University and Science Education, Multiprogram Energy Laboratories-Facilities Support and Energy Research Analysis. This funding also provides the necessary support to the Director of Energy Research to carry out Energy Research (ER) responsibilities under the Department of Energy (DOE) Organization Act (P.L. 95-91) and as mandated by the Secretary. These responsibilities include providing advice on the status and priorities of the Department's overall research and development programs, on the management of the Department's multipurpose laboratories, and on its grants and education and training activities. They also include developing research and development plans and strategies and managing the Multiprogram Energy Laboratories-Facilities Support (MEL-FS) program. The program also supports staffing resources at the Chicago and Oakland Operations Offices directly involved in executing ER programs, as well as ER resources at the Federally-staffed Environmental Measurements Laboratory (EML). Program responsibility for the EML is being transferred from the Office of Energy Research to the Assistant Secretary for Environmental Management and Energy Research will close out its program activities at the Laboratory during FY 1997.

Program direction has been divided into five categories: salaries and benefits, travel, support services, Working Capital Fund and other related expenses. Support services refers to program direction funded support services contracts that provide necessary support functions to the Federal staff, such as technical support, computer systems development, training, and mailroom. Working Capital Fund costs include goods and services provided centrally by the Department at Headquarters. Other related expenses refers to other administrative costs of maintaining Federal staff, such as building and facility costs and utilities in the field and information technology expenses.

The goal of Energy Research-Energy Supply Program Direction is to fund the staff which are necessary to provide overall management direction of ER's scientific research programs funded in the Energy Supply Research and Development appropriation and to enable the Director of ER to serve as the Department's science advisor for formulation and implementation of basic research policy.

PROGRAM MISSION - ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION (Cont'd)

The objectives related to this goal are: to develop, direct and administer a complex and broadly diversified program of mission-oriented research, including the construction and operation of forefront scientific research facilities for use by the Nation's scientific community, and to conduct independent technical assessments, peer reviews and evaluations of specific programs and projects. The staff annually monitors and evaluates approximately 2,500 individual research projects at over 250 separate institutions and provides overall direction of research and development programs designed to support the development of new and improved energy, environmental and health technologies.

PERFORMANCE MEASURES

Responsiveness to national science policy and major science initiatives.

Improvement in environment, safety and health compliance.

Provision of new and enhanced research facilities and equipment.

Continued improvement in the utilization of staffing, travel and support contractor funds.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Energy Research continues to achieve technical excellence in its programs despite managing one of the largest, most diversified and most complex basic research portfolios in the Federal Government with a relatively small Federal and support contractor staff compared to similar programs.
- Increased productivity at U.S. scientific research facilities as part of the FY 1996 Scientific Facilities initiative.
- Reorientation of the fusion program consistent with available resources and Fusion Energy Advisory Committee advice.
- Nearing completion of the Advanced Photon Source on schedule and within budget. Operations to commence in FY 1997.
- Establishment of the Laboratory Operations Board to increase the efficiency and productivity of the DOE laboratory system.

PROGRAM MISSION - ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION (Cont'd)

- Implementation of the necessary and sufficient process for establishing standards for environment, safety and health protection following successful pilots at Fermilab and the National Tritium Labeling Facility. This process tailors environment, safety and health standards to the appropriate risks inherent in particular facilities and operations.
- Ensuring the science and technology parts of the National Energy Policy Plan are achieved.
- Complete the transition of program responsibility for the Environmental Measurements Laboratory from Energy Research to the Assistant Secretary for Environmental Management.

ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION

PROGRAM FUNDING PROFILE

(Dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Activity					
Operating Expenses	$46,733	$0	$39,450 a/	$39,450	$37,600
Working Capital Funds	4,234	0	4,254 b/	4,254	4,554
Subtotal, ER-Energy Supply Program Direction	50,967	0	43,704	43,704	42,154
Adjustment	-2,000 c/	0	0	0	0
Total, ER-Energy Supply Program Direction	$48,967	$0	$43,704	$43,704	$42,154
Staffing (FTEs)					
HQ FTEs	347	0	273	273	254
Field FTEs	75	0	67	67	56
Total FTEs	422	0	340	340	310

a/ Comparability adjustment from Basic Energy Sciences, Fusion Energy Sciences, Biological and Environmental Research, University and Science Education, Advisory and Oversight, and Policy and Management of $35,010,000; and comparability adjustment of $4,440,000 from Biological and Environmental Research funding for the Environmental Measurements Laboratory.

b/ Comparability adjustments from Departmental Administration for Working Capital Funds.

c/ Share of Energy Supply, Research and Development General Reduction for use of prior year balances assigned to this program on a comparable basis. The total general reduction is applied at the appropriation level.

Public Law Authorizations:
Pub. Law 95-91, DOE Organization Act (1977)

ENERGY RESEARCH-ENERGY SUPPLY RESEARCH AND DEVELOPMENT PROGRAM DIRECTION
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995		FY 1996		
	Direct Funding:	Comparable	Non.-Comp.	Comparable	Non-Comp.	FY 1997
	Personnel compensation:					
11.1	Full-time permanent	$23,991		$23,946		$22,735
11.3	Other than full-time permanent	841		498		462
11.5	Other personnel compensation	998		1,264		1,252
11.8	Special personal services payments	0		0		0
11.9	Total personnel compensation	25,830	0	25,708	0	24,449
12.1	Civilian personnel benefits	4,722		5,675		5,800
13.0	Benefits for former personnel	562		1,875		980
21.0	Travel and transportation of persons	1,950		1,946		1,865
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services	8,591		5,519		2,574
25.2	Other services	2,627		4,316		1,932
25.3	Purchases of goods and services from Government accounts	4,234 a/		4,254 a/		4,554
25.4	Operation and maintenance of facilities					
25.5	Research and development contracts					
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment					
32.0	Land and structures					
41.0	Grants, subsidies and contributions					
99.0	Subtotal, obligations	48,516	0	49,293	0	42,154
	Reimbursable Obligations	-	-	-		
99.9	Total Obligations	48,516	0	49,293	0	42,154
	Recovery of prior year obligations	-180				0
	Unobligated balance avail, start of year	-4,958		-5,589		0
	Unobligated balance avail, end of year	5,589		0		0
	Budget Authority	$48,967	$0	$43,704	$0	$42,154

a/ Working Capital Fund.

ENERGY RESEARCH-ENERGY SUPPLY PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities:

Program Direction provides the Federal staffing resources and associated costs required to provide overall direction and execution of Office of Energy Research program and advisory responsibilities. Energy Research-Energy Supply Program Direction supports staff in the Basic Energy Sciences, Fusion Energy Sciences, Biological and Environmental Research, Computational and Technology Research, University and Science Education, Multiprogram Energy Laboratories-Facilities Support and Energy Research Analysis programs, including management and technical support staff. This program also supports staff at the Chicago and Oakland Operations Offices directly involved in program execution, as well as ER resources at the Environmental Measurements Laboratory. Staff includes scientific and technical personnel and program management support in the areas of budget and finance, general administration, grants and contracts, information resource management, policy review and coordination, infrastructure management and construction management.

In addition to the consolidation of all of the individual Energy Research-Energy Supply Program Direction accounts into one decision unit at the appropriation level, as directed by Congress, the FY 1997 request reflects two other major changes. Congress directed that all Federal salary costs be budgeted for in program direction accounts. Therefore, $3,600,000 is included in the FY 1997 budget request for Energy Research-supported staff at the Federally-staffed Environmental Measurements Laboratory (EML). Energy Research support for EML had previously been budgeted in Biological and Environmental Research program funds. FY 1997 represents the last year of ER funding for EML, since program responsibility for the Laboratory is being transferred from Energy Research to the Assistant Secretary for Environmental Management. In addition, beginning in FY 1997, program organizations are contributing to a Working Capital Fund to cover the costs of centrally provided goods and services, such as supplies, housing, utilities, etc., which previously were budgeted in Departmental Administration. $4,554,000 has been included in the FY 1997 request for Energy Research-Energy Supply Program Direction for the Working Capital Fund. Appropriate amounts have been included in the FY 1995 and FY 1996 Comparable Appropriation columns to reflect the above changes.

II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Chicago					
Salary and Benefits	6,003	0	5,371	5,371	4,380
Travel	480	0	386	386	350
Support Services	310	0	254	254	204
Other Related Expenses	615	0	461	461	460
Total	$7,408	$ 0	$ 6,472	$6,472	$ 5,394
Full Time Equivalents	73	0	65	65	54
Average FTE Costs	$ 102	$ 0	$ 100	$ 100	$ 100
Oakland					
Salary and Benefits	206	0	62	162	165
Travel	15	0	15	15	15
Support Services	3	0	0	0	0
Other Related Expenses	82	0	10	10	59
Total	$ 306	$ 0	$ 187	$ 187	$ 239
Full Time Equivalents	2	0	2	2	2
Average FTE Costs	$ 153	$ 0	$ 93	$ 93	$ 119
Headquarters					
Salary and Benefits	31,058	0	27,725	27,725	26,635
Travel	2,390	0	1,545	1,545	1,500
Support Services	3,976	0	2,470	2,470	2,370
Other Related Expenses	1,595	0	1,051	1,051	1,462
Working Capital Fund	4,234	0	4,254	4,254	4,554
Total	$ 43,253	$ 0	$37,045	$ 37,045	$36,521
Full Time Equivalents	347	0	273	273	254
Average FTE Costs	$ 125	$ 0	$ 135	$ 135	$ 143

II. **Funding Table (Cont'd):**

	FY 1995 Comparable Appropriation		FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Total Energy Research						
Salary and Benefits	37,267		0	33,258	33,258	31,180
Travel	2,885	a/	0	1,946	1,946	1,865
Support Services	4,289	b/	0	2,724	2,724	2,574
Other Related Expenses	2,292		0	1,522	1,522	1,981
Working Capital Fund	4,234		0	4,254	4,254	4,554
Total	$50,967		$ 0	$43,704	$43,704	$42,154
Full Time Equivalents (FTEs)	422		0	340	340	310
Average FTE Costs	$ 121		$ 0	$ 128	$ 128	$ 136
Adjustment:	- 2,000	c/	0	0	0	0
Total Program Direction	48,967		0	43,704	43,704	42,154

a/ Includes $445,000 Rescission Reduction for Travel.
b/ Included $521,000 Rescission Reduction for Support Services.
c/ Share of Energy Supply Research and Development program direction general reduction for use of prior year balances.

III. Performance Summary

FY 1995 Accomplishments:

o Provided personnel compensation including salaries and personnel benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 422 full-time equivalents in Energy Research-Energy Supply Program Direction.

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III. Performance Summary (Cont'd)

- Staff provided overall direction and management of all of the Office of Energy Research's research and development programs funded in the Energy Supply Research and Development appropriation; also provided for the Director of Energy Research's responsibilities for advising the Secretary on science and technology issues and responding to requests for special analyses.

- Assessed the scientific and technical needs of the Energy Supply programs and prepared research and development plans to address them.

- Established priorities, developed funding strategies, evaluated and funded research proposals from laboratories, universities and industries, and monitored their progress.

- Managed and provided technical direction of over 1,400 individual research projects at over 200 separate institutions in the Basic Energy Sciences Program. The projects included research in materials sciences, chemical sciences, energy biosciences, geosciences, and engineering sciences. Monitored and evaluated the projects. Provided construction management and technical direction for the Advanced Photon Source project at Argonne National Laboratory. Supported the Basic Energy Sciences Advisory Committee.

- Managed research and development projects for mathematical and computational science. Managed technical direction of the ER supercomputer centers and Energy Science Network development activities. Managed the laboratory technology research and advanced energy projects programs. Managed the Department-wide Small Business Innovation Research and Small Business Technology Transfer programs.

- Managed and provided technical direction of 850 active research projects in the Biological and Environmental Research program including the appropriate competitive merit review of technical programs and selection of new activities. Continued central role in Federal activities supporting research that probes fundamental scientific issues in health and environmental research such as global climate change. Managed continuing efforts on health and environmental effects of radiation and toxic chemicals. Managed research to develop modern diagnostic and molecular therapy tools by combining the resources of structural, computational and molecular biology, nuclear medicine, and boron neutron capture therapy (BNCT). Supported the Health and Environmental Research Advisory Committee.

- The Fusion Energy Sciences staff supported materials and component development activities, and international collaboration on the International Thermonuclear Experimental Reactor design activities. Continued support of the Tokamak Physics Experiment project, Tokamak Fusion Test Reactor D-T experiments, and efforts to improve the tokamak concept and ensure continuing development of inertial fusion energy. Supported the Fusion Energy Advisory Committee.

III. Performance Summary (Cont'd)

- Provided the science and technology sections of the National Energy Policy Plan and the Department's Strategic Plan; conducted independent peer reviews of 300 projects in Energy Research, Fossil Energy, and Energy Efficiency to determine the quality of the science and its relevance to DOE's missions and the National science agenda; served as principal liaison with other Government science agencies and represented Energy Research and the Department on interagency coordinating councils.

- Managed uniform DOE-wide processes for continuous improvement of programs for research and development planning, laboratory-directed research and development, work-for-others and laboratory appraisals.

- Supported new performance-based contracts for DOE laboratories, developed infrastructure related performance measures and established criteria for determining the most urgent projects, and reviewed and implemented nuclear safety requirements contained in the Price Anderson Amendment Act of 1988. Managed the Multiprogram Energy Laboratory-Facilities Support program.

FY 1996 Accomplishments (to date and planned):

- Provide personnel compensation including salaries and benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 340 full-time equivalents in Energy Research-Energy Supply Program Direction.

- Provide overall direction and management of all of the Office of Energy Research's research and development programs funded in the Energy Supply Research and Development appropriation; also provide for the Director of Energy Research's responsibilities for advising the Secretary on science and technology issues and responding to requests for special analyses.

- Assess the scientific and technical needs of the Energy Supply programs and prepare research and development plans to address them.

- Establish priorities, develop funding strategies, evaluate and fund research proposals from laboratories, universities and industry, and monitor their progress.

- Manage and provide technical direction of the highly diversified research and development activities of the Basic Energy Sciences Program; direct conceptual design activities for a spallation neutron source and continue construction and preparation for operation of the Advance Photon Source; continue to support the Basic Energy Sciences Advisory Committee.

- Continue to manage the Department's Small Business Innovation Research and Small Business Technology Transfer programs.

III. Performance Summary (Cont'd)

- Continue to support the interagency National Science and Technology Council high performance computing and communications program, ER supercomputer centers, and research and development projects for mathematical and computational science.

- Continue to manage and provide technical direction of research projects in the Biological and Environmental Research Program including the appropriate competitive merit review and selection of new projects and continue support of the Health and Environmental Research Advisory Committee.

- Continue construction management and research planning for the Environmental Molecular Sciences Laboratory at PNNL and the Human Genome Laboratory at LBNL. Complete construction and commence operations at the Structural Biology Centers at ANL and LBNL.

- Transition program responsibility for the Environmental Measurements Laboratory from Energy Research to the Assistant Secretary for Environmental Management.

- Restructure the fusion program from a technology-based to a science-based program in response to budget reductions and Fusion Energy Advisory Committee recommendations. Continue to support various fusion materials and component development activities including design and research and development tasks for the International Thermonuclear Experimental Reactor; expand the focus on international collaboration on fusion activities; continue support of the Fusion Energy Advisory Committee. Manage facility operations and research at D-III-D and Alcator C-Mod facilities consistent with the revised fusion program mission.

- Continue to represent Energy Research and the Department in high level interagency fora, such as the National Science and Technology Council, and to serve as principal liaison with other Government science agencies and other science organizations.

- Continue to manage a uniform DOE-wide process for improvement of programs for research and development planning, laboratory-directed research and development, and work-for-others and a laboratory appraisal process that measures progress in these areas.

- Continue management of the MEL-FS program; continue the development of infrastructure related performance measures; monitor progress towards goals related to these performance measures and implement criteria for determining the most urgent projects.

- Assume management of science education programs in response to direction from Congress.

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III. Performance Summary (Cont'd)

FY 1997 Planned Accomplishments:

- Provide personnel compensation including salaries and benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 310 full-time equivalents in Energy Research-Energy Supply Program Direction.
- Provide overall direction and management of all of the Office of Energy Research's research and development programs funded in the Energy Supply Research and Development appropriation; also provide for the Director of Energy Research's responsibilities for advising the Secretary on science and technology issues and responding to requests for special analyses.
- Assess the scientific and technical needs of the Energy Supply programs and prepare research and development plans to address them.
- Continue to establish priorities, develop funding strategies, evaluate and fund research proposals from laboratories, universities and industry, and monitor progress.
- Continue to provide program direction and oversight of efforts to meet National research goals supporting the Nation's energy-related technology foundation and support the Basic Energy Sciences Advisory Committee.
- Continue to manage and provide technical direction for all Basic Energy Science Program activities with increased emphasis on science for sustainable development; support increased operating time at the program's scientific research facilities and ensure their safe, healthy and environmentally sound operation.
- Direct completion of conceptual design activities for a spallation neutron source.
- Continue to support the interagency National Science and Technology Council high performance computing and communications program, ER supercomputer centers, and research and development projects for mathematical and computational science.
- Manage the Small Business Innovation Research program for the Department.
- Continue to manage and provide technical direction for all Biological and Environmental Research projects, including competitive merit review and selection of new projects and continue support of the Health and Environmental Research Advisory Committee.

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III. Performance Summary (Cont'd)

- Manage establishment of a third Atmospheric Radiation Measurement (ARM) site and coordinate complementary research activities across ARM sites with interagency partners.

- Continue construction management and research planning for the Environmental Molecular Sciences Laboratory at PNNL and the Human Genome Laboratory at LBNL.

- Complete the closeout of ER activities at the Environmental Measurements Laboratory as a result of transfer of program responsibility for the Laboratory to the Assistant Secretary for Environmental Management.

- Continue the transition to a fusion energy sciences program in response to the Fusion Energy Advisory Committee recommendations.

- Continue the emphasis on planning with foreign partners for a comprehensive fusion energy sciences program with particular emphasis on the International Thermonuclear Experimental Reactor; continue support of the Fusion Energy Advisory Committee.

- Manage a process for continuous improvement for research and development planning in the Department in coordination with other Federal agencies and in support of National science goals.

- Continue management of the Multiprogram Energy Laboratory-Facilities Support program with a focus on the most urgent projects as demonstrated by application of infrastructure related performance measures.

- Manage the ER efforts in science education in support of ER programmatic goals.

IV. Explanation of Funding Change FY 1996 through FY 1997

- The decrease of $1,550,000 in FY 1997 is due primarily to decreases in Federal staff, travel and support services costs resulting from Energy Research's streamlining efforts. These decreases have been only partially offset by within grade and cost-of-living increases for remaining staff, and administrative costs associated with downsizing, and an increase in the Working Capital Fund.

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III. Performance Summary (Cont'd)

V. Explanation of Average FTE costs:

Variations in average FTE costs from office to office result from a number of factors. The average for Headquarters is considerably higher than the field, for example. The major reasons for the difference is the charge at Headquarters for the Working Capital Fund for centrally provided goods and services. In addition, Energy Research Headquarters staff is comprised primarily of senior level scientific program managers, many of whom independently manage and direct large research programs in particular scientific disciplines. There is generally a higher ratio of support to professional staff in the field than in Headquarters due to the nature of the program execution functions carried out in the field, as opposed to the policy, planning and program management functions provided at Headquarters. The difference between average FTE costs at Chicago and Oakland results from the fact that Oakland has only two ER-funded staff in this program direction account, both of whom are scientific/technical staff, while two-thirds of Chicago's staff in this account are at the Environmental Measurements Laboratory, which has a broad range of grade levels of scientific and support staff.

Other Energy Programs

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

OTHER ENERGY PROGRAMS

VOLUME 2

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TECHNICAL INFORMATION MANAGEMENT PROGRAM

PROGRAM MISSION

This program provides services and operational support for the Technical Information Management Program, which provides direction and coordination in the management and dissemination of scientific and technical information resulting from Department of Energy research and development and environmental programs; provides worldwide energy scientific and technical information to the Department of Energy, United States (U.S.) industry, academia, and the public; and fulfills international and interagency scientific and technical information commitments in support of Departmental and U.S. obligations.

The Office of Scientific and Technical Information, which reports to the Associate Director for Resource Management in the Office of Energy Research, is responsible for providing coordination and direction for the Department's Technical Information Management Program and for maintaining a centralized base of support to assist Departmental elements in planning, developing, and implementing scientific and technical information activities.

The GOAL of the Technical Information Management Program is to:

(a) Assure that scientific and technical information resulting from the Department of Energy's programmatic efforts is effectively managed and easily accessible to U.S. industry, educators, and the public in forms that facilitate responsiveness to customer needs, and (b) leverage the domestic technical information collection to acquire foreign energy research results through multilateral and bilateral exchange agreements. This approach assures that scientific and technical information is effectively provided to individuals who need it, thus facilitating accomplishment of Departmental goals related to energy efficiency, energy supplies, environmental protection and restoration, science and engineering research and education, and national competitiveness.

The OBJECTIVES related to these goals are:

- Provide technical and operational support for the coordination of scientific and technical information policy, activities, and standards to support Department of Energy programmatic needs.
- Acquire and manage a base of Department of Energy scientific, technical, and environmental information and other domestic and international information needed by the Department and its customers.
- Ensure the broad dissemination of or access to energy-related information while protecting national security and promoting U.S. competitiveness.

- Maximize the value of scientific and technical information by providing specialized information management support and services to the Department of Energy community.

- Promote the transfer of technology to the U.S. commercial sector through information-sharing partnerships and access channels focused on globally competitive technologies.

PERFORMANCE MEASURES:

Performance measures for the Technical Information Management Program are both qualitative and quantitative. The quality of the program is measured by the Department-wide adoption and implementation of "best business practices" for managing scientific and technical information. This includes the use of standards and practices for ensuring that information is planned for, managed, shared, and disseminated in a way that minimizes duplication of programmatic effort. Quality is also measured by customer satisfaction (industry, academia, government) with information timeliness, accuracy, and comprehensiveness. Quantitative performance measures include:

- Percent of information collected and managed from the Department's multi-billion dollar annual research and development investment.

- Increase in public access to Department of Energy scientific and technical information.

- Percent and amount of foreign energy-related information acquired to augment the U.S. collection and promote national competitiveness.

- Number and usage levels of information access channels.

- Number of technical information management systems and tools developed for Department of Energy elements to evaluate and improve program performance.

- Amount of declassified or previously limited information made available to the public.

- Environment, safety, and health ratings of the Office of Scientific and Technical Information facility.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- The Program has effectively captured and managed 95-98 percent of scientific and technical information resulting from the Department's multi-billion dollar research and development investment.

- The Program has developed new electronic access channels (e.g., DOE Home Page) to make the Department of Energy's information more readily available and easily accessible to the public. This is part of a long-term strategic shift from traditional media (paper, fiche) to electronic information sharing.

- Alliances have been established with other Departmental organizations to leverage resources and improve service and delivery of information to specific customers.
- The availability of worldwide energy-related scientific and technical information has been improved through international and interagency cooperation.
- The integration of scientific and technical information goals and objectives into the Department's activities has resulted in improved and more cost-effective information management and use within the Department.
- Partnerships with the Government Printing Office, Nuclear Regulatory Commission, and with international organizations have been strengthened to ensure broad availability of worldwide information to the U.S. public.
- Evaluation systems have been developed to measure Departmental performance in meeting customers' scientific and technical information needs.

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TECHNICAL INFORMATION MANAGEMENT PROGRAM
PROGRAM FUNDING PROFILE
(DOLLARS IN THOUSANDS)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Technical Information Management Program					
Operating Expenses	$ 4,795	$ 2,200	$ (24)b/	$ 2,176	$ 2,300
Construction	1,000	1,000	-	1,000	1,000
Technical Information Management Program	$ 5,795	$ 3,200	$ (24)b/	$ 3,176	$ 3,300
Adjustment	(171)a/	(180)a/	-	(180)a/	-
TOTAL	$ 5,624	$ 3,020	$ (24)	$ 2,996	$ 3,300

a/ Share of Energy Supply Research and Development general reduction/use of prior year balances
b/ Reprogrammed to Indian Energy Resources Program

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TECHNICAL INFORMATION MANAGEMENT PROGRAM

PROGRAM FUNDING BY SITE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real. & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Office of Scientific & Technical Information	$ 6,110	$ 3,200	$ -	$ 3,176	$ 3,300
Oak Ridge National Laboratory	5	-	-	-	-
Subtotal	$ 6,115	$ 3,200	$ (24)b/	$ 3,176	$ 3,300
Adjustment	(491)a/	(180)a/			-
TOTAL	$ 5,624	$ 3,020	$ (24)	$ 3,176	$ 3,300

a/ Share of Energy Supply Research and Development general reduction/use of prior year balances
b/ Reprogrammed to Indian Energy Resources Program

PROGRAM PERFORMANCE SUMMARY

TECHNICAL INFORMATION MANAGEMENT PROGRAM

I. **Mission Supporting Goals and Objectives**

The Technical Information Management Program is a Department-wide approach to managing scientific and technical information resulting from a multi-billion dollar investment in energy supply research, weapons site cleanup, national security, and other energy-related technologies. The Program, directed and coordinated by the Office of Scientific and Technical Information, is implemented at many levels within the Department and by its contractors. The operational responsibilities of the Program include collecting, protecting, and disseminating appropriate Department of Energy information for the benefit of U.S. educational, industrial, and research communities. Operational activities also include the development and maintenance of systems and technologies to transition from traditional information media to electronic information exchange.

The operational activities listed below support the Program's goals and objectives. Specifically, the goals and objectives include:

- Establishing additional channels to Department of Energy information to expand the knowledge base in U.S. industrial, educational, and public communities.
- Developing information management models and coordinating "best business" information policies and practices to help Departmental elements track and evaluate their programs and to increase the return on the Department of Energy's research and development and environment-related investments.
- Acquiring and organizing international information on research and technology needed by U.S. communities.
- Continuing environment, safety, and health improvements in the Department's Office of Scientific and Technical Information facility for the protection of its historic and current technical information resources.

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II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Operating Expenses	$ 5,115	$ 2,200	$ 2,300	$ 100	5%
Construction	1,000	1,000	1,000	0	0%
Subtotal	$ 6,115	$ 3,200	$ 3,300	$ 100	3%
Adjustment	(491) a/	(24) b/	-	24	-
Total, Technical Information Management Program	$ 5,624	$ 3,176	$ 3,300	$ 124	4%

a/ Share of Energy Supply Research and Development general reductions/use of prior year balances
b/ Reprogrammed to Indian Energy Resources Program

III. Performance Summary:

FY 1995 Accomplishments:

- Increased the number of technical information users served by 30 percent, reaching new customers through more easily accessible and readily available access channels.
- Developed three new electronic public access channels (CD-ROM and on Internet Home Page), significantly increasing the use of DOE information.
- Acquired and disseminated over 85,000 foreign energy-related research summaries for use by U.S. academic and industrial communities.
- Developed management information systems and decision and evaluation tools for Department of Energy program offices in the areas of nonproliferation, openness, national competitiveness (technology transfer), and environment, safety, and health.
- Completed design phase and first-year of a three-year construction project to remove all remaining asbestos from the Office of Scientific and Technical Information facility and upgrade the heating, ventilation, and air-conditioning system.

FY 1996 Accomplishments (to date and planned):

- Acquire 10-20 percent of Department of Energy scientific and technical information through Internet-based electronic exchange.
- Implement system to identify and share information on research, development, and demonstration projects, raising the awareness of ongoing efforts and reducing the likelihood of duplication.
- Complete 50 percent of a three-year project to remove asbestos and upgrade the heating, ventilation, and air-conditioning system at the Office of Scientific and Technical Information facility.

FY 1997 Planned Accomplishments:

- Implement electronic full-text information exchange as the primary means for processing, managing, and disseminating the Department's scientific and technical information.
- Collect, store, and manage scientific and technical information from downsized or consolidated Department of Energy technical facilities, ensuring future availability to scientists, engineers, and program managers.
- Initiate implementation of technology to provide "paperless" on-demand document management and delivery for scientific and technical information users.
- Establish mechanisms and management tools to effectively track and evaluate 100 percent of ongoing Department of Energy research and development activities to ensure nonduplication of effort.
- Achieve two-thirds completion of the asbestos removal and heating, ventilation, and air-conditioning system upgrade at the Office of Scientific and Technical Information facility.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

From FY 1996 to FY 1997, there is essentially no change in funding, but this follows a 47 percent funding reduction from FY 1995. In order to accommodate normal escalation and cost-of-living increases, contractor staffing has been and will be reduced.

The $204,000 increase from FY 1996 to FY 1997 represents funding that was originally in the FY 1996 budget but was cut as a result of continuing resolution impacts. In FY 1997, these funds will be applied to enhancing public access to information. The additional $100,000 increase is balanced by an equal reduction in program direction; Program-wide, there is no increase. The shift in funds is a modest effort to offset large cuts made in FY 1996 and will allow operational elements to accommodate basic escalation costs. As a result of the significant FY 1996 reduction, FY 1997 programmatic goals are impacted in the following ways:

- Further reductions in the timeliness, quality, or amount of worldwide information available to U.S. communities.

- Slower transition from a centralized, traditional media-based environment to a decentralized electronic environment.
- Significant difficulty in filling the federal research community's and the private sector's need and readiness for electronic, easily accessible information.
- One-year delay in the completion of the construction project for asbestos removal and heating, ventilation, and air-conditioning system upgrade.

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TECHNICAL INFORMATION MANAGEMENT PROGRAM
CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY
(Dollars in Thousands)

Captial Operating Expenses	FY 1995	FY 1996	FY 1997	$ CHG.	% CHG.
Capital Equipment (total)	$ 589	$ 400	$ 400	$ 0	0%

Construction Project summary (both Operating and Construction Funded)

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Unapprop Balance
95-A-500	Office of Scientific and Technical Information Heating, Ventilation, and Air Conditioning HVAC Retrofits	$ 4,000	$ -	$ 1,000	$ 1,000	$ 1,000	$ 1,000
TOTAL, TECHNICAL INFORMATION MANAGEMENT PROGRAM		$ 4,000	$ 0	$ 1,000	$ 1,000	$ 1,000	$ 1,000

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TECHNICAL INFORMATION MANAGEMENT PROGRAM

PROGRAM OBJECT CLASS SUMMARY

		FY 1995	FY 1996	FY 1997
22.0	Transportation of things	$ 96	$ 0	$ 0
25.2	Other services	4,310	1,636	1,760
26.0	Supplies and materials	120	140	140
31.0	Equipment	656	450	400
32.0	Land and structures	1,000	1,000	1,000
99.9	Total Obligations	$ 6,182	$ 3,226	$ 3,300
	Recovery of prior year obligations	(491) a/	0	0
	Unobligated balance available, start of year	(117)	(50)	0
	Unobligated balance available, end of year	50	0	0
	Budget Authority	$ 5,624	$ 3,176	$ 3,300

a/ Share of Energy Supply Research and Development general reduction/use of prior year balances

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT

CONSTRUCTION PROJECT DATA SHEET

TECHNICAL INFORMATION MANAGEMENT PROGRAM

Office of Scientific
and Technical Information (OSTI)

Program 39 LA

(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and location of project: Heating, Ventilation and Air Condition (HVAC) Retrofits of OSTI Facility, Oak Ridge, Tennessee

2. Project No: 95-A-500

3. Date A-E work initiated: 1st Quarter FY 1995

5. Previous Cost Estimate: $3,800
Date: June 1992

3a. Date physical construction starts: 1st Quarter FY 1995 (Asbestos abatement design and review started in 1st quarter FY 1995. Actual revmoval begins in 2nd Quarter FY 1996. Renovation of HVAC will begin in FY 1997 following engineering design and award of contract. Original timetable for completion has been extended by one year due to funding shortfalls in FY 1996 and FY 1997).

6. Current Cost Estimate: $4,000
Date: September 1993

4. Date construction ends: 3rd Quarter FY 1998

7. Financial Schedule:

Fiscal Year	Authorizations	Appropriations	Obligations	Costs
1995 (actual)	$4,000	$1,000	$ 980	$ 270
1996	0	1,000	1,020	1,730
1997	0	1,000	1,000	1,000
1998	0	1,000	1,000	1,000
	$4,000	$4,000	$4,000	$4,000

8. Project Description, Justification, and Scope:

This project will update and renovate the HVAC systems of the Office of Scientific and Technical Information facility in Oak Ridge, Tennessee. The facility is a single level facility with 132,000 square feet. Proposed changes to the HVAC system include the following: addition of a new chiller (FY 1997), addition of new chilled water distribution system (FY 1997), upgrade of the existing chiller to use a non-ozone-depleting refrigerant (FY 1997), replacement of air conditioning units which are at the end of their useful life (FY 1997), rework of the air distribution system for several of the air conditioning units (FY 1998), replacement of deteriorated air distribution system insulation (FY 1998), and removal of friable asbestos (FY 1996) and asbestos that is associated with HVAC renovations (FY 1996).

1. Title and location of project: Heating, Ventilation and Air Condition (HVAC) Retrofits of OSTI Facility, Oak Ridge, Tennessee

2. Project No.: 95-A-500

The OSTI facility is approximately 40 years old. It was originally constructed for warehouse purposes, and in the early 1950s it was renovated to include office and production areas and now houses over 220 DOE and DOE contractor employees. In the FY 1990 and FY 1991 timeframe under another construction project, the facility's roof, archival area, electrical system, and security area were upgraded. This project also provided for the replacement of the cooling tower and some asbestos removal.

Due to the age of the facility, many heating, ventilating and air conditioning (HVAC) systems in the building are over or near the end of their useful life. Due to OSTI's expanded mission, many HVAC systems are overloaded and do not meet the building's operational needs. These antiquated HVAC systems require continual maintenance and pose a threat to the invaluable archived material for which OSTI is responsible and to the uninterrupted operation of the computer room, which is central to OSTI's operations. Finally, asbestos is located in several areas above the ceiling. The presence of asbestos is causing personnel and operational problems which need to be eliminated for personnel safety and for ease in maintenance operations.

The work under this project would contribute significantly toward extending the life of the facility to 20 years, enhancing OSTI's ability to perform its continually expanding mission, assuring uninterrupted operation of OSTI's production equipment, and improving personnel safety.

9. Details of Cost Estimate

	Total Cost
a. Engineering, design, and inspection at approximately 12.5 percent of construction costs, item b	$ 335
b. Construction costs	3,145
c. Contingency at approximately 16 percent of above costs	520
Total project costs	$4,000

10. Method of Performance

Titles I, II and III engineering will be accomplished by a prime A/E contractor. Construction and procurement will be accomplished by the Oak Ridge on-site construction management contractor (MK Ferguson) utilizing fixed price subcontracts selected on the basis of competitive bidding.

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1. Title and location of project: Heating, Ventilation and Air Condition (HVAC) Retrofits of OSTI Facility, Oak Ridge, Tennessee

2. Project No.: 95-A-500

11. Funding Schedule of Project Funding and Other Related Funding Requirements:

	Prior Years	FY 1995 (Actual)	FY 1996	FY 1997	FY 1998	Total
a. Total project funding						
(1) Total facility costs						
(a) Construction and line item	0	$ 270	$1,730	$1,000	$1,000	$4,000
(b) PE&D	0	0	0	0	0	0
(c) Expense funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
Total facility costs	0	$ 270	$1,730	$1,000	$1,000	$4,000
(2) Other project funding						
(a) R&D necessary to complete construction	0	0	0	0	0	0
(b) Other project related costs	0	0	0	0	0	0
Total project funding	0	$ 270	$1,730	$1,000	$1,000	$4,000

b. Total related funding requirements	
(1) Facility operating costs	0
(2) Programmatic operating expenses directly related to the facility	0
(3) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(4) GPP or other construction related to programmatic effort in the facility	0
(5) Other costs	0
Total other related annual costs	0

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

(None)

13. Incorporation of Fallout Shelters in Future Federal Buildings

This project does not include the construction of new buildings; therefore, the provision for fallout shelters is not applicable.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
FIELD OPERATIONS

EXECUTIVE BUDGET SUMMARY

Mission:
The Office of the Associate Deputy Secretary for Field Management (Field Management) provides managerial oversight of the eight Operations Offices, and the Ohio and Rocky Flats Field Offices. It also provides management and oversight of the Department's life cycle capital asset program which includes project management, real property management, utilities, maintenance and facilities efforts.

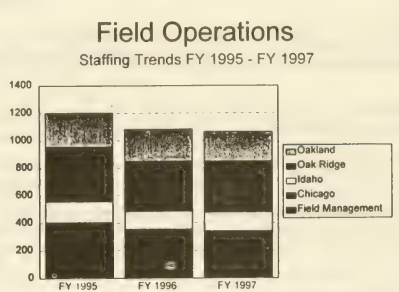
Field Management is also the lead Office for a number of Departmental initiatives including Strategic Alignment, contract reform, and consolidation of contractor oversight activities performed by Headquarters organizations.

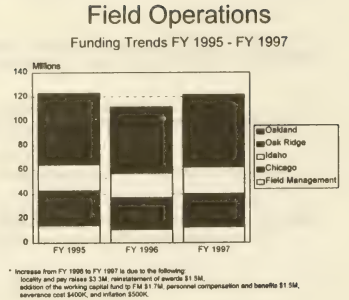
Additionally, Field Management has responsibility for those portions of the Chicago, Idaho, Oakland and Oak Ridge Operations Offices manpower and administration activities previously funded within the Department's Departmental Administration account.

Strategy:
Field Management serves as a change agent, implementing and institutionalizing Administration and Departmental initiatives, most notably Strategic Alignment, performance based management, contract reform, decentralization and empowerment, to bring about a customer-orientated, cost conscious organizations in both the Headquarters and the field.

Major Changes:
The activities funded within this account were previously funded within the Departmental Administration account. This move provides for a more focused resource management of the four multi-purpose field Operations Offices. It distinguishes Headquarters staff activities from field operations activities for improved management and oversight of Departmental operations.

Site Funding and Federal Staffing Targets: (cont'd)





* Increase from FY 1996 to FY 1997 is due to the following: locality and pay raises $3.3M; reinstatement of awards $1.5M; addition of the working capital fund to FM $1.7M; personnel compensation and benefits $1.5M; severance cost $400K; and inflation $500K.

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FIELD OPERATIONS

PROGRAM MISSION

The Office of the Associate Deputy Secretary for Field Management (Field Management) provides managerial oversight of the eight Operations Offices and the Ohio and Rocky Flats Field Offices. It also provides management and oversight of the Department's life cycle capital asset program which includes project management, real property management, utilities, maintenance and facilities efforts.

Field Management is also the lead Office for a number of Departmental initiatives including Strategic Alignment, contract reform, and consolidation of contractor oversight activities performed by Headquarters organizations.

Additionally, Field Management has responsibility for those portions of the Chicago, Idaho, Oakland and Oak Ridge Operations Offices manpower and administration activities previously funded within the Department's Departmental Administration account.

The GOAL of Field Management's mission is to serve as a change agent within the Department to advance and institutionalize the Department's commitment to customer service and cost effectiveness while providing continuous improvement in technical and managerial discipline to effectively carry out the Department's programmatic mission.

The OBJECTIVES related to this mission are:

1. MANAGING AND COORDINATING THE DEPARTMENT'S STRATEGIC ALIGNMENT INITIATIVE: Meet the end-of-year employment goals, maintain diversity during the Department's right sizing initiative and meet or exceed the Secretary's supervisor to employee ratio goal.

2. MANAGEMENT PRACTICES: Develop and maintain Departmental management and facilities policies, systems and studies. Be the leader in developing and implementing innovative systems and standards for contractor selection, negotiation and administration with particular emphasis on performance-based contracts. Improve the accuracy of the Department's project management and life cycle asset management systems and procedures through a hierarchy of requirements, training and assurance of clear guidance.

3. ENVIRONMENT, SAFETY AND HEALTH: For the Operations Offices, achieve cost effective ES&H excellence oriented towards environmentally sound and safe workplace management practices at all facilities.

FIELD OPERATIONS

PROGRAM MISSION

PERFORMANCE MEASURES:

1. MANAGING AND COORDINATING THE DEPARTMENT'S STRATEGIC ALIGNMENT INITIATIVE (SAI):
   A. Meet or exceed SAI staffing targets for FY 1997.
   B. Increase the supervisor to employee ratio of 1 to 12.
   C. Advance diversity education and maintain the workforce profile.
   D. Reduce travel and support services to meet or exceed SAI targets across the organization.

2. MANAGEMENT PRACTICES:
   A. Streamline project management proce dure and processes.
   B. Improve acquisition and project management skills across the complex via certification training and improved systems.
   C. Increase Performance-Based Management contracting for laboratory and M&O contractors.
   D. Increase fixed price and incentive contracts for well defines and no time procurement across the organization.
   E. Improve corporate and local systems for baseling, monitoring, business management and reporting across the Department.
   F. Implement an executive management system prototype at the field level.
   G. Develop standard cross cut management information systems.
   H. Implement instruction models for program management, asset management and budget deployment via the Internet.
   I. Consolidation of Headquarters oversight of field activities.

3. ENVIRONMENT, SAFETY AND HEALTH:
   A. Reduce ES&H risk across the organization through increased compliance reviews and accomplishments compliance actions.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- The Office of Contractor Employee Protection has been transferred from the Office of Field Management to the Office of the Inspector General in accordance with Congressional direction and the recommendation of the Strategic Alignment Initiative in FY 1996.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS: (cont'd)

- Created a corporate facilities "cradle to grave" approach for the management of the Department's acquisition, maintenance and decommission by implementing new Life Cycle Asset Management directives..
- The Chicago Operations Office and the University of Chicago completed negotiations and executed the first performance-based management and operating contract for operation of a major DOE laboratory by a not-for-profit organization.
- The Idaho Operations Office Organizational Streamlining Plan has increased its percentage of technical/professional to other skill mix from 38.3% in 1990 to 56% in 1995. Also a matrix organization has created a 17:1 employee to supervisor ratio surpassing the DOE goal of 10:1.
- The Oak Ridge Operations Office has completed the consolidation of financial databases and payment processes for the Financial Center of Excellence.
- The Chicago Operations Office examined and streamlined the process for National Environmental Policy Act (NEPA) documentation based on Total Quality Management and continuous improvement, replacing a cumbersome, time-consuming, manpower intensive process. The new process will result in a 10-fold reduction in cycle time, a 5-fold reduction in cost, and increased responsiveness to project schedule.
- The Oakland Operations Office has radically exceeded the goals set forth in the FY 1995 budget by, administering 1,310 contracts and grants, performing 176 contract and grant closeouts and performing 49 ES&H reviews.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
FIELD OPERATIONS
(Dollars in thousands)

PROGRAM FUNDING PROFILE

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Field Management, HQ	$ 16,310	$ 0	$ 12,096	$ 12,096	$ 12,802
Chicago Operations Office	28,170	0	26,110	26,110	27,277
Idaho Operations Office	23,214	0	20,006	20,006	21,911
Oak Ridge Operations Office	35,911	0	33,530	33,530	36,484
Oakland Operations Office	23,828	0	21,173	21,173	23,249
TOTAL, Field Operations	$ 127,433	$ 0	$ 112,915	$ 112,915	$ 121,723

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
FIELD OPERATIONS
(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY1996 Comparable Appropriation	FY 1997 Budget Request
Office of Associate Deputy Secretary For Field Management	$ 16,310	$ 0	$ 12,096	$ 12,096	$ 12,802
Headquarters	16,310	0	12,096	12,096	12,802
Chicago Operations Office	28,170	0	26,110	26,110	27,277
Idaho Operations Office	23,214	0	20,006	20,006	21,911
Oakland Operations Office	35,911	0	33,530	33,530	36,484
Oak Ridge Operations Office	23,828	0	21,173	21,173	23,249
Subtotal	$ 111,123	$ 0	$ 100,818	$ 100,818	$ 108,921
Adjustment: a/	0	0	0	0	0
TOTAL	$ 127,433	$ 0	$ 112,915	$ 112,915	$ 121,723

a/ Use of prior years unobligated balances.

CHICAGO OPERATIONS OFFICE

PROGRAM MISSION

The Chicago Operations Office (CH) is a technical and business management team whose purpose is to advance the Department of Energy's (DOE) Mission and core values through administering and managing programs, projects, facilities, and contracts. CH is responsible for integrated management of energy laboratories and facilities as well as execution of DOE programs and projects in the field. The office performs a broad range of functions in support of research and technology development activities at its various contractor sites. These management functions include: field procurement and contract administration (over 2,300 contractual and financial assistance instruments); environmental restoration and waste management; environmental, safety and health monitoring; property management; labor relations; personnel; and financial management. CH prepares and administers budgets and maintains both technical and an administrative staff to support ongoing programs and projects for Energy Research and several other DOE Program Offices. In addition, CH has cognizance of over 12,000 contractor employees located at various site offices, national laboratories, and other facilities under its purview. The budget supports Federal staff required to carry out these crosscutting administrative and technical oversight responsibilities, which are applicable to a broad range of DOE programs.

CH program oversight responsibilities include: High Energy Physics; Fusion Energy R&D and related test facilities; Basic Energy Sciences; Biological and Environmental Research; the Reactor Safety and Technology programs; Security Affairs; Environment, Safety and Health; Decontamination and Decommissioning and other Environmental Restoration and Waste Management efforts; Energy Efficiency and Renewable Energy and Cogeneration Technology projects; technology utilization; university construction grant programs; and work for others.

CH administers and manages the multi-program laboratories Argonne National Laboratory-East (ANL) and Brookhaven National Laboratory (BNL) and single purpose facilities - Ames Laboratory at Iowa State University, MIT's Bates Linear Accelerator Center, Fermi National Accelerator Laboratory (FERMILAB), Michigan State University's Plant Research Laboratory, Notre Dame Radiation Laboratory, and Princeton Plasma Physics Laboratory (PPPL); and Government-owned Government-operated Laboratories Environmental Measurements Laboratory (EML) and New Brunswick Laboratory (NBL).

GOALS AND OBJECTIVES

- Be the leader in developing and using innovative systems and standards for contractor selection, negotiation, and management, with particular emphasis on performance-based contracting.
- Achieve results-oriented, cost-effective, environmentally sound, and safe workplace management practices at all facilities.
- Pursue new initiatives to advance the Department's missions in science and technology.
- Establish a regionally-based R&D Technology Management program by collaborating with contractors, end users, grantees, industrial partners, universities, and state and local government.

PERFORMANCE MEASURES:

- Convert the remaining three Laboratory Management and Operating contracts to performance based contracts. As in the two Management and Operating contracts already converted, the contracts will contain approximately 60 performance measures for the operational, areas including incentives to utilize fixed price subcontracts.
- Continue to utilize fixed price prime and other-incentive type contracts as has already been accomplished with the protective services and information processing support services contracts.
- Streamline our project management procedures and processes.

Environmental Safety & Health

- The time required to prepare Environmental Assessments has been reduced by NEPA contracting reform. Performance on cost reduction has not been measured at this point, however, data is currently being collected.

Financial

- Improve systems for baselining, monitoring, reporting and validating contractor cost savings resulting from conversion of M&O contractors to Performance Based Management contracts.
- Improve financial oversight of M&O contractors identifying opportunities for cost reductions.

SIGNIFICANT ACCOMPLISHMENTS:

- In line with the National Performance Review and the DOE Strategic Alignment Initiative, CH has realigned its operations to: improve line management performance; enable one-stop shopping for customers; increase technical assistance; streamline oversight; eliminate micro management/reduce layers and accommodate employee empowerment and accountability.

- CH and the University of Chicago completed negotiations and executed the first performance-based management and operating contract for operation of a major DOE laboratory by a not-for-profit organization. The new Argonne National Laboratory contract incorporates key objectives of DOE's Contract Reform Initiative including: a fully incentivized performance fee contractor; assumption of increased risk associated with financial liabilities; performance-based management; and agreed upon cost reductions. The new contract is-projected to save approximately $77 million savings through September 30, 1999.

- CH also concluded negotiations and executed a new performance based contract with Associated Universities, Inc. on August 21, 1995 for operation of Brookhaven National Laboratory. CH expects this new agreement to save $69 million over the next 5 years.

- 1,200 CH grantees received expedited payment due to a streamlined DOE/Health and Human Services cooperative payment management system. CH's process completely eliminates manual processing.

- In the past year, CH has reduced receivables over 90 days with the implementation of a deposits data base and automated receivables follow-up letters.

- CH continued a Quality Initiative that resulted in cost savings initiatives, streamlined processes, and teaming efforts enabling CH's internal realignment, consistent with Departmental realignment and the National Performance Review.

- CH examined and streamlined the process for National Environmental Policy Act (NEPA) documentation based on Total Quality Management and continuous improvement, replacing a cumbersome, time-consuming, manpower intensive process. The new process will result in a 10-fold reduction in processing time, a 5-fold reduction in cost, and increased responsiveness to project schedules.

- Chicago has proudly overseen contractor operations which have made significant contributions to science and technology during the past year:
  Recently, physicists at Fermi National Accelerator Laboratory announced the discovery of the top quark, the last undiscovered quark of the six predicted to exist by current scientific theory. The discovery provides strong support for the "Standard Model" of the structure of matter.

  Researchers at Brookhaven National Laboratory's Brookhaven Medical Reactor, in cooperation with doctors from Beth Israel Hospital, have provided Boron Neutron Capture Therapy to six patients with glioblastoma, a rare form of brain cancer.

  Princeton Plasma Physics Laboratory's Tokamak Fusion Test Reactor produced a world record 10.7 million watts of controlled fusion power during the world's first experiments utilizing a 50/50 mix of deuterium and tritium.

CHICAGO OPERATIONS OFFICE

I. Mission Supporting Goals and Objectives:

Goals and objectives include providing the support necessary to all Departmental missions in the most cost effective and efficient manner. This includes not only the routine support activities necessary to sustain these missions, but also priority initiatives such as Defense Nuclear Facilities Safety Board (DNFSB) activities, Chief Financial Officer initiatives, task order contracting and contract reform, technology transfer activities, safeguards and security and emergency preparedness activities and the promotion of the safety and health of employees and the Public.

II. Funding Schedule:

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Total, Chicago Operations Office	$ 28,170	$ 26,110	$ 27,277	1,167	4

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III. Performance Summary: CHICAGO OPERATIONS OFFICE

FY 1995 Accomplishments:

- In line with the National Performance Review and the DOE realignment initiative, the Chicago Operations Office (CH) has realigned its operations to: improve line management performance; enable one-stop shopping for customers; increase technical assistance; streamline oversight; eliminate micromanagement/reduce layers and accommodate employee empowerment and accountability.

- CH and the University of Chicago completed negotiations and executed the first performance-based management and operating contract for operation of a major DOE laboratory by a not-for-profit organization. The new Argonne National Laboratory contract incorporates key objectives of DOE's Contract Reform Initiative including: a fully incentivized performance fee; assumption of increased risk associated with financial liabilities; performance-based management; and agreed upon cost reductions. The new contract is projected to save approximately $77 million savings through September 30, 1999.

FY 1995 Accomplishments: (cont'd)

- CH also concluded negotiations and executed a new performance-based contract with Associated Universities, Inc. on August 21, 1995 for operation of Brookhaven National Laboratory. CH expects this new agreement to save $69 million over the next 5 years.

- 1,200 CH grantees received expedited payment due to a streamlined DOE/Health and Human Services cooperative payment management system. CH's process completely eliminates manual processing.

- In the past year, CH has reduced receivables over 90 days with the implementation of a deposits data base and automated receivables follow-up letters.

- CH continued a Quality Initiative that resulted in cost savings initiatives, streamlined processes, and teaming efforts enabling CH's internal realignment, consistent with Departmental realignment and the National Performance Review

- CH examined and streamlined the process for National Environmental Policy Act (NEPA) documentation based on Total Quality Management and continuous improvement, replacing a cumbersome, time-consuming, manpower intensive process. The new process will result in a 10-fold reduction in cycle time, a 5-fold reduction in cost, and increased responsiveness to protect schedules.

FY 1996 Accomplishments (to date and planned):

- Execute the first year of a five year performance-based management and operating contracts with Argonne National Laboratory and Brookhaven National Laboratory.

- CH will conclude performance based management contract negotiations with Princeton Plasma Physics Laboratory and Fermi National Accelerator Laboratory.

- 1,200 CH grantees will continue to receive expedited payments due to a streamlined DOE/Health and Human Services cooperative payment management system.

- Oversee the commissioning and start of operations of the Department's Advanced Photon Source.

- Continue to administer the Department's RHIC (Relativistic Heavy Ion Collider) and the FMI (Fermi Main Injector) projects to maintain cost/schedule performance.

FY 1996 Accomplishments: (con't)

- Continue to increase the ratio of employee to supervisors from the FY 1995 baseline of 11:1.
- Transition the first phase of certain accounting functions for payments, travel, and receivables to the Department's consolidated accounting sites.

FY 1997 Planned Accomplishments:

- Continue to administer the Department's RHIC (Relativistic Heavy Ion Collider) and the FMI (Fermi Main Injector) projects to maintain cost/schedule performance.
- Continue to execute the CH laboratory's performance-based management and operating contracts.
- Continue the phased transfer of accounting functions for payments, travel, and receivables to the Department's consolidated accounting sites.
- Continue to increase the ratio of employees to supervisors from the FY 1995 baseline of 11:1.

Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $1,167,000 is due to the reinstatement of awards ($465,000), the FY 1996 and FY 1997 locality pay increase and pay raise ($547,000), and increase in benefits commensurate with salary adjustments ($156,000).

FIELD MANAGEMENT

PROGRAM MISSION

The Office of Field Management provides direction, policy, management and coordination to the eight Operations Offices and the Ohio and Rocky Flats Field Offices. This includes, strategic planning, review of resource allocation, infrastructure requirements, and general oversight responsibilities.

GOALS AND OBJECTIVES

1. The goals of the Office of Field Management are to:

- Facilitate implementation of Environment, Safety and Health initiatives.
- Ensure that Field Management, in its role as liaison between the field and program offices not only communicates field policy, but acts as an advocate for these parties.
- Improve communication and trust within the Department of Energy.
- Develop and provide Departmental Life Cycle Asset Management policy, systems and standards. Provide a variety of technical and operational services including real property acquisition, utilities expertise and property disposal.

PROGRAM OBJECTIVES

- Manage and coordinate the Department's Strategic Alignment Initiative effort.
- Develop and maintain Departmental management and facilities maintenance policies, systems and standards.
- Review Daily Operations Briefs and communicate the findings to the potentially affected field offices and work with the field and program offices to identify the root cause of problems.
- Provide assistance to field and program offices in developing and enhancing performance measurements systems through trend analysis of construction project performance indicators.
- Assure Field Offices have sufficient resources to carry out their assigned responsibilities.
- Institutionalize Contract Reform within the Department.
- Improve the accuracy of the Department's construction project cost and schedule estimates through a hierarchy of requirements, training and issuance of clear guidance.
- Provide assistance and support to the Field Offices to aid their transformation due to the Department's Alignment efforts.
- Provide support to the Field Offices in maintaining diversity.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Created a "cradle to grave" approach for the management of the Department's acquisition, maintenance, and decommission by implementing new Life Cycle Asset Management directives.
- Developed and implemented the Secretary's Comprehensive Land Use Policy which includes the economic, ecological, social and cultural factors in site planning.
- Transferred the Office of Contractor Employee Protection to the Office of Inspector General in accordance with Congressional direction and the recommendation of the Strategic Alignment Initiative in FY 1996.

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FIELD MANAGEMENT

I. Mission Supporting Goals and Objectives:

The goals of the Office of Field Management include facilitating implementation of Environment, Safety and Health initiatives; ensuring that Field Management, in its role as liaison to field and program offices not only communicates as communicators of field policy, but as conduits and advocates of both customers; improve communication and trust within the Department of Energy's complex among the field and program offices; develop and provide Departmental Life Cycle Asset Management policy systems and standards; and provide a variety of technical and operational services including real estate, utilities expertise and property disposal.

II. Funding Schedule:

Activity	FY 1995	FY 1996	FY 1997	$Change	% Change
Total, Field Management	$ 16,310	$ 12,096	$ 12,802	706	6

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III.

Performance Summary: FIELD MANAGEMENT

FY 1995 Accomplishments:

- Initiated two pilot programs to reduce burdensome oversight of the Field Offices, contractors, and National Laboratories by Headquarter elements as cited in the Galvin report to the Secretary.

- Eliminated thirteen Department of Energy orders and replaced them with the Life Cycle Asset Management Directive, saving an estimated $51 million annually.

FY 1995 Accomplishments: (Cont'd)

- Developed in partnership with the Office of Environment Management, the Surplus Facility Transfer Order establishing the policy for the orderly transition of contaminated facilities from operating organizations to Environment Management and Waste Management.
- Allocated Strategic Alignment Initiative staffing reductions for field activities through a consensus process.
- Provided contractor employee protection services in 35 new cases received since 1993.
- Completed a special assessment of the Superconducting Super Collider project to determine critical cost risk areas, leading to an informed, cost effective, efficient termination of the project.
- Saved an estimated $19.8 million annually through the competitive procurement of electric power at the Nevada Test Site ($1.4m), the privatization of the Savannah River D-Area Powerhouse ($10m) and managed the competitive acquisition of natural gas at 17 Department sites ($8.4m).
- Avoided cost of an estimated $176 million through the coordination of corporate practices for value-engineering and the participation in eight utility rate interventions for Department sites.

FY 1996 Accomplishments (to date and planned):

- Assist in developing a corporate system to integrate policy/financial and project management systems in support of the Annual Performance Plan.
- Further integrate the strategic planning, project and budget process, assisting in the development of a comprehensive management system.
- Further empower the Operation Offices to conduct additional Energy System Acquisition Advisory actions.

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FY 1996 Accomplisments: (Cont'd)

- Implement a Comprehensive Landlord Integrated Facilities Planning Process with an emphasis on site strategic planning and budgeting for the Department.

- Lead Departmental initiatives to improve and reduce field office and contractor oversight along with other contract reform issues and collect performance measurements for reform pilots in place; lead efforts to institutionalize.

- Implement Life Cycle Asset Management Directives for the acquisition, management operations, and disposal of the Department's infrastructure assets and obtain performance measurements for the Department's Annual Performance Plan. This will include the merging of two offices into a single unit, increasing productivity and customer service.

- Implement an orderly execution of Strategic Alignment Initiative milestone and staffing targets.

- Through participation in the Executive Resource Board, manage the reallocation of Senior Executive Service positions in the field.

- Achieve cost avoidances through utility rate case interventions, and utility acquisition planning and management.

FY 1997 Planned Accomplishments:

- Further delegate management authority using participatory and consensus based systems for infrastructure assets, including Major System Acquisition and major projects.

- Collect contract references to measure the success of empowering the Field Offices with certain Energy System Acquisition Advisory Board actions to assure responsible, cost-effective, and high value added decisions are made.

- Achieve cost avoidances through utility rate case interventions, and utility acquisition planning and management.

- Implement an automated facilities inspection process at all Department sites.

FY 1997 Planned Accomplishments: (cont'd)

- Complete Contract Reform actions and transfer the activity to the Deputy Assistant Secretary for Procurement and Assistance Management.

Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $706,000 is due to the reinstatement of awards and overtime ($301,000), the FY 1997 payraise and locality pay increase (145,000), other related salary expenses ($39,000), and inflation of 3.2% in contractural services ($221,000).

IDAHO OPERATIONS OFFICE

PROGRAM MISSION

The Idaho Operations Office (ID) is responsible for administering the Idaho National Laboratory (INEL), a multi-program Government-owned contractor-operated Laboratory in the areas of waste management operations; environmental restoration activities; nuclear safety research; test reactor operations, remediation projects, decontamination and decommissioning (D&D) activities, fuel consolidation efforts; biological and environmental research; nonproliferation and national security programs; coal and petroleum technologies; conservation and renewal energy programs; industrial partnering initiatives, Cooperative Research & Development Agreements (CRADAS) and technology transfer activities.

ID performs a wide variety of functions in support of energy activities throughout the country. Among these functions are field procurement, health and safety monitoring, property management, labor relations and maintenance of personnel, and financial systems. ID plans, develops, and administers budgets, and maintains an administrative staff to support on-going programs and projects. In addition, the field office has cognizance over thousands of contractor employees located at various locations.

GOALS AND OBJECTIVES:

Contract/Procurement

- Reduce processing time for placing procurements.
- Increase involvement in Small and Disadvantaged Business in all technical activities (especially engineering and construction).
- DOE-ID Performance Incentive Process.

Financial

- Improve systems for base lining, monitoring, reporting, and validating contractor cost savings.
- Implement an Executive Information System prototype aiding in management decision making (BMIS).

PROGRAM MISSION - IDAHO OPERATIONS OFFICE (Cont'd)

- Develop an Internal Budget process which enhances ID Program accountability and enhances budget reporting capabilities.
- Develop and implement a Cost Conscious Initiative which is an awareness/education program for ID employees.
- Complete a detailed analysis of the costs and savings associated with work force restructuring.
- Through contract reform, privatization and continued pressure to reduce overhead costs.

Personnel

- Increase diversity in the Department despite right sizing environment.
- Increase training opportunities for employees while emphasizing critical job skills in a right sizing environment.
- Meet Strategic Alignment full time equivalents goals.

Environment Safety & Health

- Reduce ES&H risk by performing compliance reviews and accomplishing compliance actions.

Program Evaluation

- Metrics are being created to establish baselines to be used as data points in performance evaluation. Historical accomplishments will be used as bench marks. Indicators will be identified, measured, and monitored enabling potential continuous improvement. Emphasis is being placed on outputs and results.

I. Mission Supporting Goals and Objectives:

The Idaho Operations Office (ID) is responsible for administering the Idaho National Laboratory (INEL), a multi-program Government-owned contractor-operated Laboratory in the areas of waste management operations; environmental restoration activities; nuclear safety research; test reactor operations; remediation projects, decontamination and decommissioning (D&D) activities, fuel consolidation efforts; biological and environmental research; nonproliferation and national security programs; coal and petroleum technologies; conservation and renewal energy programs; industrial partnering initiatives, Cooperative Research & Development Agreements (CRADAS) and technology transfer activities. ID performs a wide variety of functions in support of energy activities throughout the country. Among these functions are field procurement, health and safety monitoring, property management, labor relations and maintenance of personnel, and financial systems. The ID plans, develops, and administers budgets, and maintains an administrative staff to support on-going programs and projects. In addition, the field office has cognizance over thousands of contractor employees located at various locations.

II. Funding Schedule:

Activity	FY 1995	FY 1996	FY 1997	$Change	% Change
Total, Idaho Operations Office	$ 23,214	$ 20,006	$ 21,911	$ 1,905	9

III. Performance Summary: IDAHO OPERATIONS OFFICE

FY 1995 Accomplishments:

- Improved Environmental, Safety and Health (ES&H) programs at Idaho facilities as well as emergency preparedness. Other areas which have received increased attention in FY 1995 are safeguards and security, Chief Financial Officer initiatives, industrial partnering initiatives, Cooperative Research & Development Agreements (CRADAS) and technology transfer activities. ID had 36 patent applications, 186 invention disclosures, and 4 new companies start-up's as a result of their increased attention to these areas.

FY 1995 Accomplishments: (Cont'd)

- Idaho received an award presented by Secretary O'Leary recognizing contributions made on the Economic Diversity Small Business Goaling Enhancement Team. This team developed a Department-wide baseline of procurement dollars that will be used to establish realistic baseline goaling percentages with the U.S. Small Business Administration. This resulted in the Department being recognized as a leader among Federal agencies in small business participation.

- Idaho has increased its percentage of technical/professional to other skill mix from 38.3% in 1990 to 56% in 1995. Also a matrix organization has created a 17:1 employee to supervisor ratio; exceeding the DOE goal of 10:1.

- Completed implementation of ID's Financial Information Management System, which provides cost and budget detail by work breakdown structure, Budget and Reporting code, cost element, and organization.

- Through the consolidation, ID has reduced redundancy, leveraged technology, enhanced integration, challenged status quo, partially reinvest savings, and accelerated EM program. In FY 1995 Idaho awarded 25 CRADA's with a value of $43M, an increase in value of $33.6M.

FY 1996 Accomplishments (to date and planned):

- ID's focus will be on cost and results, not budget and FTEs. Consequently, we are creating an ID cost tracking system which will provide costs by OPS office product. This will enhance accountability of government dollars. In conjunction with the Strategic Alignment Initiative, ID will be reducing travel dollars and FTEs, while still maintaining an adequate level of support to HQ and Contractor oversight.

- ID will improve its businesslike performance by managing to cost, not budget; and incentivizing output not headcount.

- ID will establish 15 new Cooperative Research & Development Agreement (CRADAS).

FY 1997 Planned Accomplishments:

- ID's Business Management Information System (BMIS) will be on-line. This is an executive reporting system integrating cost data with work performed. It includes Contractor and ID data and will report necessary information pertaining to budget, cost, scope, head count, skill mix, and other personnel issues.

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FY 1997 Accomplishments: (Cont'd)

- ID will establish 15 new Cooperative Research & Development Agreements (CRADAS).
- ID will establish a privatized regional waste treatment center at the Idaho National Engineering Laboratory.

Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $1,905,000 is due to the reinstatement of awards (185,000), the FY 1996 and FY 1997 locality pay increase and pay raise ($244,000), personnel compensation for the increase of 7 FTE's ($893,000), increase in benefits commensurate with salary increase ($400,000), and inflation increases for other related expenses ($183,000).

OAK RIDGE OPERATIONS OFFICE

PROGRAM MISSION

The Oak Ridge Operations Office (ORO) supports the Department of Energy's (DOE) missions in National Security, Science and Technology, Energy Resources, and Environmental Quality. Technical functions to support these missions include dismantlement of nuclear weapons, basic research, energy technologies research and development, nuclear safety oversight of the gaseous diffusion plants, scientific/technical education and training, environmental restoration, waste management and asset management. Administrative functions to support these missions include budget and accounting, legal, personnel, labor relations, and staffing, telecommunications and automated data processing, procurement, contract management and contract reform, quality management, and environmental, safety and health (ES&H) oversight. In addition, administrative matrix personnel oversee the DOE Management and Operating (M&O) contractors and develop policies to govern their activities.

GOALS AND OBJECTIVES:

Goals include recognition of the changing missions of DOE and ORO and the creation of an infrastructure to support those changing missions by proactively focusing on cost reduction and implementation of DOE's strategic alignment and contract reform initiatives. In addition, ORO remains committed to priority initiatives involving the safety and health of employees and the public such as the activities of the Defense Nuclear Facilities Safety Board.

OBJECTIVES RELATED TO THESE GOALS:

- Accelerate the reduction of environmental risk.
- Reduce the Y-12 weapons footprint.
- Reindustrialize K-25 and Y-12 for commercial use.
- Revitalize the scientific infrastructure.
- Implement contract reform provisions in M&O contracts.

PROGRAM MISSION - OAK RIDGE OPERATIONS OFFICE (Cont'd)

- Improve systems for baselining, monitoring/reporting/validating contractor cost savings from conversion of M&O contracts to performance-based management contracts.
- Create public and private partnerships for regional economic development.
- Increase technical support to line management in ES&H/Quality Assurance areas.
- Utilize DOE's assets through metals recycle, sale of precious metals, and uranium disposition.
- Assure protection of the environment and promote the safety and health of employees and the public.

PERFORMANCE MEASURES:

- Average processing time from receipt of requisition to date of contract award.
- Total socioeconomic award dollars against pre-established goals.
- Enhancements in internal processes to efficiently and effectively project, plan, and staff the organization with sufficient internal controls to assure authorized staffing levels are not exceeded, while maintaining a high retention level of critical staff.
- Systems in place which provide ability to interface with all necessary entities, including internal organizations, as well as Headquarters other operations offices, and contractors.
- Percent of injuries/illnesses of Federal and contractor personnel.
- Trained employees to effectively and efficiently perform technical responsibilities in the of Business Management Reviews, DNFSB activities, and the Facility Representative and Quality Program.
- Increasing trend of timely and accurate payments and collections.
- Percent of costs deemed unallowable by internal and external audit reports.

I. Mission Supporting Goals and Objectives:

Goals and objectives include providing the support necessary to all Departmental missions in the most cost effective and efficient manner. This includes not only the routine support activities necessary to sustain these missions, but also the incremental support activities in priority areas such as Defense Nuclear Facilities Safety Board (DNFSB) activities, Chief Financial Officer initiatives, task order contracting and contract reform, technology transfer activities, safeguards and security and emergency preparedness activities and the promotion of the safety and health of employees and the Public.

II. Funding Schedule:

Activity	FY 1995	FY 1996	FY 1997	$Change	%Change
Total, Oak Ridge Operations Office	$ 35,911	$ 33,530	$ 36,484	$ 2,954	8

III. Performance Summary: OAK RIDGE OPERATIONS OFFICE

FY 1995 Accomplishments:

- Installed grant payment process improvements which saved two FTE staff on a continuing basis.
- Financial Management Division selected from a group of ten as one of the three DOE Financial Centers of Excellence. Transition plans underway to migrate and eventually consolidate financial databases and payment processes. Initiative approximately 45 percent complete.
- Provided services and support for approximately 600 Federal employees, including rent, utilities, telecommunications, maintenance contracts, and support contracts for ADP, ES&H, and administrative/technical and facilities support.
- Initiated and provided funding for an ORO automation initiative to bring ORO in line with current technology for a more efficient and cost effective operation. Initiative is 95 percent complete on bringing office automation processing up to current standards. Procured 250 Pentium PC's to replace obsolete 286 and 386 models; rewired the Federal Building to provide both voice and data up to 100 megabyte capacity to the desktop; replaced the All-In-One E-mail system with cc:Mail; and procured software upgrades.
- Significant progress by the M&O contractor, Lockheed Martin Energy Systems, in developing a site-wide WBS organization concept, including an automated "task-based" management system, which will enhance ORO's ability to plan, budget, and execute work.

FY 1995 Accomplishments: (Cont'd)

- Renegotiated the Lockheed Martin Energy Systems contract to convert to a performance-based contract.
- Exceeded the goals for awards to small disadvantaged, minority-owned, and women-owned businesses.
- Implemented several initiatives to streamline the procurement process, including streamlining the closeout process, the review of subcontracts, and the competitive procurement process.
- Oversaw completion of 38 construction projects with a combined total estimated cost (TEC) of $87,000,000 in the Environmental Management program; completion of two significant line-item projects and the last two weapons systems line-item projects in Defense Programs; completion of two Facilities Capability Assurance Project (FCAP) projects; and the reduction of general plant project (GPP) schedules by an average of three months with a projected savings of $500,000.
- Developed Interim Qualification Program for facility representatives, including the development of oral evaluation instruments; and procured in-house courses for facility representatives in Construction Safety.
- Radiological Assessment, Technical Safety Requirements, Accident Investigation, Operational Readiness, Occupational Safety and Health. Environmental Management. and Environmental Laws and Regulations.
- Assisted Y-12 Restart effort by revising position standards and Individual Development Plans for all technical employees and developing study guide to DOE 5480.19.
- Participated in the development of interface concepts of operations and communications links between ORO, K-25, and the state in order to complete the State of Tennessee Multi-jurisdictional Plan for Operational Emergencies at K-25.
- Facilitated obtaining equivalencies or exemptions to DOE fire protection requirements that have saved approximately $4,000,000 in FY 1995 by sustaining an average fire loss rate for ORO of approximately 0.01 cents loss per hundred dollars of replacement value as compared to the average private sector loss of 0.70 cents per hundred dollars.
- Provided direction and support to DOE programs and contractors in the area of transportation and packaging resulting in an estimated savings of $5,000,000 through technical assistance activities and trained 175 personnel in transportation regulatory compliance.
- Accomplished organizational and strategic realignment in order to meet Departmental streamlining goals and reach a 1:10 supervisor-to-employee ratio with essentially no disruption to mission accomplishment.

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FY 1996 Accomplishments (to date and planned):

- Negotiated major revisions to personnel cost portions of two M&O contracts (Southeastern Universities Research Association [SURA] and (LMES) which resulted in significant streamlining of the contracts by reducing transaction approvals required under each contract (moving to DOE review of major programs, rather than individual cases) and placing increased accountability for performance results on the contractor.

- Executed a performance-based management contract extension with Lockheed Martin Energy Systems for the management of environmental management, energy research, and defense programs missions under the cognizance of Oak Ridge Operations Office. The contract extension focuses on objective and incentivized performance measures, multiple fee arrangements, and cost reduction opportunities.

- Executed a separate contract for management of Oak Ridge National Laboratory with the award of a performance-based management contract to Lockheed Martin Energy Research Corporation. This separate contract allows the laboratory greater visibility, comparability with other national laboratories, and increase focus of resources on science.

- Began utilizing incentive task orders (ITOS) under the Lockheed Martin Energy Systems contract for selected environmental restoration and waste management projects. ITOS's are typically cost-plus-incentive fee arrangements for individually negotiated projects with specific cost and performance incentives. The contractor assumes more risk under the task order but is also rewarded for better performance, and the Government reaps the benefits of better contractor performance and reduced costs.

- Streamlined the ORO review process for Lockheed Martin Energy Systems, Inc. Subcontracts and reduced the time required for review from 46 days to 6 days, resulting in an overall cycle time reduction of 87 percent.

- Formed an ORO Partnership Group to focus on (1) establishing partnerships for technology transfer and economic development with other Federal agencies, universities, State/regional governments, and private industry; (2) reindustrializing Oak Ridge sites; and (3) cultivating an outreach and development function for new projects.

- Executed Memoranda of Cooperation with local governments, including the City of Chattanooga and the City of Knoxville and Knox County for sustainable development and economic growth.

- Develop an acquisition strategy for future management of ORO missions and facilities.

- Provide services and support to the Federal work force for the same activities as in FY 1995; however, costs are increasing due to normal annual increases, as-well as reliance on computing and telecommunications increasing and causing increased costs.

- Continue upgrade of office automation by procuring hardware/software to retire the remainder of the inadequate PC's and continue software upgrades; procuring, installing, developing systems such as Travel Manager, Stride, and full access to INTERNET; bringing in the Voicemail portion of the ORF-ICN which will preclude the need of ORO and contractors to continue using separate, inadequate, and cost inefficient voicemail services; and completing initiative begun in FY 1995 to define an optical disk storage system that can facilitate electronic movement of documents as opposed to paper.

FY 1996 Accomplishments: (Cont'd)

- Consolidation of financial databases and payment processes for the Financial Center of Excellence 100 percent complete.
- Complete 50 percent of the development and design of facility-specific training modules, on-the-job training guides, and facility-specific exam banks for some 50 facilities. Procure training courses in the areas of hazardous wastes, fundamentals of operations, emergency preparedness, site access, and criticality safety.
- Complete implementation of the Emergency Management Network, which will provide a computer data link for transfer of emergency information between the Oak Ridge area sites and the state of Tennessee.
- Reduce costs of excessive ES&H oversight by relying more on outcome-based measures such as ES&H performance indicators, trending, and analysis. Only one major DOE oversight activity will be conducted at ORNL, and it is expected that researchers will spend less time responding to audit and appraisal findings.
- Continue providing direction and support to DOE programs and contractors in the area of transportation and packaging that will result in a cost savings of approximately $2,000,000.
- Accomplish strategic realignment to reduce overall staff by a minimum of 81 positions while meeting critical mission requirements and positioning ourselves for further reductions in the following years.

FY 1997 Planned Accomplishments:

- Complete five major projects (three of which are task order projects) underway at K-25, Y-12, and ORNL.
- Continue to streamline the procurement process.
- Re-evaluate network operating environment and transition to nonproprietary INTEL-based network environment.
- Complete 100 percent of the development and design of facility-specific training modules, on-the-job training guides, and facility-specific exam banks for some 50 facilities.
- Complete implementation of the ORO Emergency Operations Network, which will provide computer links for transfer of emergency information between the seven major ORO sites and the ORO Emergency Operations Center.
- Continue efforts to reduce cost of excessive ES&H contractor oversight.
- Continue to provide direction and support to DOE programs and contractors in transportation regulatory compliance that will result in a savings of approximately $2,000,000.

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Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $ 2,954,000 is due to the reinstatement of awards and overtime ($385,000), the FY 1996 and FY 1997 locality pay increase and pay raise ($1,113,000), personnel compensation for the increase of 6 FTE's and temporary employees ($550,000), increase in benefits commensurate with salary adjustments ($319,000), increase in contractual services ($269,000), rental payments ($100,000), and inflationary increase in other related expenses ($218,000).

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OAKLAND OPERATIONS OFFICE

PROGRAM MISSION

The Oakland Operations Office (OAK) is responsible for administering several Government-Owned Contractor-Operated Laboratories including Lawrence Livermore National Laboratory (LLNL), Lawrence Berkeley National Laboratory (LBNL), Stanford Linear Accelerator Center (SLAC), and the Energy Technology Engineering Center (ETEC). The office also oversees DOE research at the Laboratory of Radiobiology and Environmental Health at the University of San Francisco (UCSF), the Laboratory of Laser Energies (University of Rochester), Naval Research Laboratory (NRL) and numerous industrial contractors (e.g., General Atomics, General Electric, and Rockwell) and grants.

OAK oversight responsibilities include program and project activities in the Department of Energy's Major Missions. These programs include: National Security Programs R&D, National Security, High Energy and Nuclear Physics Programs, Fusion Energy R&D, Basic Energy Sciences, Biological and Environmental Research, Nuclear Energy Program, Decontamination and Decommissioning and other Environmental Restoration and Waste Management efforts, Energy Efficiency and Renewable Energy, and Fossil Energy programs as well as oversight of the Work for Others activities.

OAK performs a wide variety of functions in support of energy activities at various contractor sites. Among these functions are field procurement and contract management, health and safety monitoring, property management, labor relations, and personnel and financial management. OAK prepares and administers budgets and maintains a technical and administrative staff to support ongoing programs and projects for numerous Program Secretarial Offices. In additional, OAK has cognizance of 12,300 contractor employees located at national laboratories and other facilities. This budget supports the Federal staff required to carry out these crosscutting administrative and oversight responsibilities not applicable to any single DOE Program.

Strategic Alignment

OAK is implementing the Secretary's Strategic Alignment Initiative (SAI). The OAK Field Chief Financial Officer was a part of the SAI team that developed the plan and several staff members from the OAK office are actively participating on various teams to implement the 45 recommendations. Just as the OAK Office supported the National Performance Review and the Secretary's Streamlining Plan to increase employee to supervisor ratio in FY 1994, OAK is vigorously pursuing efforts to meet the recommendations outlined in the SAI.

GOALS AND OBJECTIVES

- OAK and it Laboratories to remain a major source of scientific and technical information for industry, state, and local government, educational institutions, and small and disadvantaged businesses;
- OAK recognized as a leader in developing and implementing model management systems and work processes designed to provide quality products with superior customer service;
- OAK is the acquisition office of choice for DOE/HQ and other DOE customers/stakeholders;
- OAK is transition from a compliance/transaction-oriented contract administration to performance-based, efficient, systems-oriented contract management of the Laboratories;
- OAK to achieve ES&H excellence oriented towards efficient, risk-based systems management. Using performance measures contained in the University of California contracts, consistent overall improvements in ES&H has been demonstrated. OAK will continue to improve ES&H performance measures in the University of California contract by incorporating more leading and behavioral indicators and will develop performance measures for inclusions in the Stanford Linear Accelerator Center contract renewal.
- The performance-based management philosophy has resulted in the identification of key performance objectives in personnel property management. Performance objectives have resulted in increased visibility on desired results, thereby promoting enhanced performance in key areas.
- During FY 1995, performance-based management resulted in continued performance improvements in OAK's personal property management program. Perhaps most notably, the trending of personal property inventory data has resulted in increased inventory effectiveness. In fact, inventory results reflect over 99.5% of property as being located and accounted for. While performance in critical areas has improved, property management staffing levels have decreased measurably throughout the OAK complex.

Management

- Contribute to the goals and objectives of the Strategic Alignment Team.
- Implement Business Oversight Reviews as outlined by the Office of Field Management.
- Continue to partner with laboratories on performance measures

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GOALS AND OBJECTIVES - Cont'd

Financial

- Improve systems to enhance OAK and its contractor's costs savings, which includes utilization of the Management Analysis Reporting System (MARS) and participation in the Financial Management Systems in Improvement Council (FMSIC).

Contract/Procurement

- Continue to enhance contract reform at OAK.
- Increase performance based contracting.
- OAK has performance-based measures in two of our Management and Operating (M&O) contracts and is working to get performance measures in another M&O contract.

Project Management

- Meet annual milestones of each project within budget and on schedule.

I. Mission Supporting Goals and Objectives:

Provide oversight to program and project activities in: National Security, High Energy Physics and Nuclear Physics Programs, Fusion Energy R&D, Basic Energy Sciences, Biological and Environmental Research, Nuclear Energy Program, Decontamination and Decommissioning and other Environmental Restoration and Waste Management efforts, Energy Efficiency and Renewable Energy, and Fossil Energy programs. In addition, OAK provides oversight of the Work for Others activities.

Support Energy activities at various contractor, sites by performing functions including: field procurement and contract management, health and safety monitoring, property management, labor relations, and personnel and financial management.

Prepare and administer budgets, maintaining a technical and administrative staff to support ongoing programs and protest for numerous Program Secretarial Offices.

II. Funding Schedule:

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Total, Oakland Operations Office	$ 23,828	$ 21,173	$ 23,249	$ 2,076	10

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III. Performance Summary: Oakland Operations Office

FY 1995 Accomplishments:

- Given declining human and financial resources, OAK has initiated steps in repositioning resources to meet future needs and customer requirements. To continue providing superior customer service, OAK has implements a skills bank that properly utilizes employee skills to meet our unfolding future. Further, implementing the 360 degree performance system that provides individual action plans and highlights accomplishments.
- OAK radically exceeded goals set forth in the FY 1995 budget by: administering 1,310 contracts and grants, performing 176 contract and grant closeouts and performing 49 ES&H reviews.
- The OAK office provided oversite of approximately 31 line-item construction projects and General Plant Projects for six DOE programs at three MSO contractor sites.

FY 1995 Accomplishments: (Cont'd)

- OAK provided staff necessary to assist in the reduction of directives; consequently, the steering committee assigned to this project has eliminated burdensome/no-value-added directives.

FY 1996 Accomplishments (to date and planned):

- Continue to conform to the Secretary's Strategic Alignment Initiative (SAI) and the National Performance Review as outlined for FY 1996.
- Reduce travel costs by 25%.
- Reduce Capital Equipment costs by over 60%.
- Reduce lease rates by 1/3 from FY 1995 charges.
- Continue to decrease processing time for placing procurements.
- Reduce backlog of contracts in "close-out" from previous years.
- Continue ES&H compliance reviews.

FY 1997 Planned Accomplishments:

- Include cost cutting strategies in our joint strategic plans with laboratories.
- Jointly report on results and determine additional cost saving requirements.
- Review and refine the University of California and Stanford University performance measures.
- Complete evaluations of overall performance measurements.
- Continue to provide full mission support of the SAI.

Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $2,076,000 is due to the reinstatement of awards ($252,000), the FY 1996 and FY 1997 locality pay increase and pay raise ($640,000), temporary personnel compensation ($219,000), increase in benefits commensurate with salary adjustments ($321,000), other base salary adjustments ($260,000), and inflationary increase in other related expenses ($384,000).

FIELD OPERATIONS PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities:

The Office of the Associate Deputy Secretary for Field Management (Field Management) provides managerial oversight of the eight Operations Offices and the Ohio and Rocky Flats Field Offices. It also provides management and oversight of the Department's life cycle capital asset program which includes project management, real property management, utilities, maintenance and facilities efforts.

Field Management is also the lead office for a number of Departmental initiatives including Strategic Alignment, Contract Reform, and consolidation of Headquarters oversight activities.

Additionally, Field Management has responsibility for those portions of the Chicago, Idaho, Oakland and Oak Ridge Operations Offices manpower and administration activities previously funded within the Department's Departmental Administration account.

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Program Direction has been grouped into four categories:

Salaries and Benefits provides for institutional management and/or matrix support of the programmatic mission and support of all programs under the purview of the field offices and resource management, infrastructure requirements, and project and facilities management under the purview of the Office of Field Management located in Washington D.C.. Support functions include budget and accounting, legal, patent, personnel, labor relations, staffing organizational management, freedom of information, telecommunication, space management, logistical services, automated data processing development and acquisition, contract management, procurement, personal property management and environmental health and safety assessment. In addition, matrix employees perform oversight of the DOE Management and Operating contractors in the performance of activities in their respective functions. Included are payments to employees for Voluntary Separation in Pay (VSIP) and their leave balances. In FY 1997 there are 75 scheduled buyouts at $3,000,000.

Travel provides the field offices the opportunity to participate on task teams, work various issues and formulate policy at headquarters and to conduct compliance reviews, oversight of contractors' implementation of DOE orders and regulatory requirements at the facilities under their purview. Provides for the Office of Field Management staff to travel to the eight Operations Offices and the Ohio and Rocky Flats Field Offices for the purpose of management coordination, infrastructure requirements, and project management reviews. Provides for attendance at conferences and training classes, and permanent change of station.

FIELD OPERATIONS PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities: (cont'd).

Support Services provides for centralized and administrative support of the Operations Offices included in this account and the Office of Field Management.

Other Related Expenses provides for rent and utilities for the Idaho Operations Office, Oak Ridge Operations Office, Oakland Operations Office and the Office of Field Management's office space and two other facilities supporting program FTE's located at the Oak Ridge Operations Office. Provides for expenses supporting the field offices and the Office of Field Management; telecommunication, postage, printing, reproduction, building operations, logistical services, automated data processing development and acquisition, employee development and training, health services, shipment and storage of household goods, supplies, furniture and vehicle and office equipment maintenance and capital equipment. In addition, provides for Independent Cost Estimates, technical support in contract negotiation between the Department and public utilities, analysis of project research and development efforts, and project reviews conducted by the Office of Field Management.

FIELD OPERATIONS PROGRAM DIRECTION

II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Chicago					
Salary and Benefit	20,074	0	18,504	18,504	19,392
Travel	530	0	660	660	660
Support Services	0	0	2,379	2,379	2,379
Other Related Expenses	7,566	0	4,567	4,567	4,846
Total	$28,170	$ 0	$ 26,110	$ 26,110	$ 27,277
Full Time Equivalents	315	0	296	296	273
Average	$ 89	$ 0	$ 86	$ 86	$ 100
Idaho					
Salary and Benefits	10,570	0	8,631	8,631	10,426
Travel	471	0	376	376	376
Support Services	100	0	0	0	0
Other Related Expenses	12,073	0	10,999	10,999	11,109
Total	$ 23,214	$ 0	$ 20,006	$ 20,006	$ 21,911
Full Time Equivalents	151	0	153	153	138
Average	$ 150	$ 0	$ 131	$ 131	$ 159
Oak Ridge					
Salary and Benefits	25,097	0	22,156	22,156	26,163
Travel	429	0	342	342	342
Support Services	4	0	3,519	3,519	3,519
Other Related Expenses	10,381	0	7,513	7,513	6,460
Total	$ 35,911	$ 0	$ 33,530	$ 33,530	$ 36,484
Full Time Equivalents	400	0	388	388	372
Average	$ 90	$ 0	$ 86	$ 86	$ 98

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Dollars in thousands, Narrative in whole dollars)

FIELD OPERATIONS PROGRAM DIRECTION

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Oakland					
Salary and Benefits	16,185	0	13,689	13,689	15,505
Travel	451	0	360	360	360
Support Services	1,502	0	50	50	50
Other Related Expenses	5,690	0	7,074	7,074	7,334
Total	$ 23,828	$ 0	$ 21,173	$ 21,173	$ 23,249
Full Time Equivalents	247	0	233	233	216
Average	$ 96	$ 0	$ 91	$ 91	$ 107
Field Management *					
Salary and Benefits	8,169	0	6,251	6,251	6,736
Travel	320	0	250	250	255
Support Services	3,847	0	3,494	3,494	3,494
Other Related Expenses	3,974	0	2,101	2,101	2,317
Total	$ 16,310	$ 0	$ 12,096	$ 12,096	$ 12,802
Full Time Equivalents	89	0	68	68	66
Average	$ 183	$ 0	$ 177	$ 177	$ 194
Total Field Operations					
Salary and Benefits	80,095	0	69,231	69,231	78,222
Travel	2,202	0	1,988	1,988	1,993
Support Services	5,453	0	9,442	9,442	9,442
Other Related Expenses	39,684	0	32,254	32,254	32,066
Total	$ 127,433	$ 0	$ 112,915	$ 112,915	$ 121,723
Full Time Equivalents	1,202	0	1,138	1,138	1,065
Average	$ 106	$ 0	$ 99	$ 99	$ 114
Adjustments	0	0	0	0	0
Budget Authority	$ 127,433	$ 0	$ 112,915	$ 112,915	$ 121,723

* 14 FTE's for the Office of Contractor Employee Protection were transferred to the Office of Inspector General in FY 1996. The FTE's were budgeted and paid by the Office of Field Management in FY 1995.

III. Performance Summary:

FY 1995 Measurable Performance Activities:

- The Office of Field Management, eliminated thirteen Department of Energy orders and replaced them with the Life Cycle Asset Management Directive creating a corporate facilities "cradle to grave" approach, saving an estimated $51 million annually.

- The Office of Field Management, saved an estimated $19.8 million annually through the competitive procurement of electric power at the Nevada Test Site ($1.4m), the privatization of the Savannah River D-Area Powerhouse ($10m) and managed the competitive acquisition of natural gas at 17 Department sites ($8.4m).

- The Office of Field Management avoided cost of an estimated $176 million through the coordination of corporate practices for value-engineering and the participation in eight utility rate interventions for Department sites.

- The Chicago Operations Office and the University of Chicago completed negotiations and executed the first performance-based management and operating contract for operation of a major DOE laboratory by a not-for-profit organization. The new Argonne National Laboratory contract incorporates key objectives of DOE's Contract Reform Initiative including: a fully incentives performance fee; assumption of increased risk associated with financial liabilities; performance-based management; and agreed upon cost reductions. The new contract is projected to save approximately $77 million savings through September 30, 1999.

- The Chicago Operations Office examined and streamlined the process for National Environmental Policy Act (NEPA) documentation based on Total Quality Management and continuous improvement, replacing a cumbersome, time-consuming, manpower intensive process. The new process will result in a 10-fold reduction in cycle time, a 5-fold reduction in cost, and increased responsiveness to protect schedules.

- The Idaho Operations Office Organizational Streamlining Plan has increased its percentage of technical/professional to other skill mix from 38.3% in 1990 to 56% in 1995. Also a matrix organization has created a 17:1 employee to supervisor ratio surpassing the Departmental goal of 10:1.

- The Oakland Operations Office exceeded goals set forth in the FY 1995 budget by: administering 1,310 contracts and grants, performing 176 contract and grant closeouts and performing 49 ES&H reviews.

FIELD OPERATIONS PROGRAM DIRECTION

III. Performance Summary: (cont'd)

- The Oakland Operations Office provided oversight of approximately 31 line-item construction projects and General Plant Projects for six DOE programs at three MSO contractor sites.

- The Oak Ridge Operations made significant progress by the M&O contractor, LMES, in developing a site-wide WBS organization concept, including an automated "task-based" management system, which will enhance ORO's ability to plan, budget, and execute work.

- The Oak Ridge Operations Office negotiated major revisions to personnel cost portions of two M&O contracts (Southeastern Universities Research Association [SURA] and LMES) which resulted in significant streamlining of the contracts by reducing transaction approvals required under each contract (moving to DOE review of major programs, rather than individual cases) and placing increased accountability for performance results on the contractor.

FY 1996 Measurable Performance Activities:

- The Office of Field Management will implement a Comprehensive Landlord Integrated Facilities Planning Process with an emphasis on site strategic planning and budgeting for the Department.

- The Office of Field Management will lead Departmental initiatives to improve and reduce field office and contractor oversight along with other contract reform issues and collect performance measurements for reform pilots in place and will lead efforts to institutionalize within the Department.

- The Office of Field Management will implement Life Cycle Asset Management Directives promoting corporate facilities cradle to grave approaches for the acquisition, management operations, and disposal of the Department's infrastructure assets and obtain performance measurements for the Department's Annual Performance Plan. This will include the merging of two offices into a single unit, increasing productivity and customer service.

- The Chicago Operations Office will execute the first year of a five year performance-based management and operating contract with Argonne National Laboratory and Brookhaven National Laboratory.

- The Chicago Operations Office is in the process of concluding performance based management contract negotiations with Princeton Plasma Physics Laboratory and Fermi National Accelerator Laboratory.

III. Performance Summary: (cont'd)

- The Idaho Operations Office focus will be on cost and results, not budget and FTEs. Complete a cost tracking system at Idaho Operations Office to provide costs product. This will support cost reduction in administrative and support cost and improve contractor oversight.
- The Oakland Operations Office key accomplishments for FY 1996 are focused on reducing travel(20%) and capital equipment(60%), lease rates by 33% from FY 1995 levels, continue to decrease cycle time for placing procurement and reduce the backlog of contracts in "close-out" from previous years.
- The Oak Ridge Operations Office will consolidate financial databases and payment processes for the Financial Center of Excellence 100 percent complete.
- The Oak Ridge Operations Office will complete implementation of the Emergency Management Network, which will provide a computer data link for transfer of emergency information between the Oak Ridge area sites and the state of Tennessee.
- The Oak Ridge Operations Office will reduce costs of excessive ES&H oversight by relying more on outcome-based measures such as ES&H performance indicators, trending, and analysis. Only one major DOE oversight activity will be conducted at ORNL, and it is expected that researchers will spend less time responding to audit and appraisal findings.

FY 1997 Measurable Performance Activities:

- The Office of Field Management will implement an automated facilities inspection process at all Department sites.
- The Office of Field Management will complete Contract Reform actions and transfer the activity to the Deputy Assistant Secretary for Procurement and Assistance Management.
- The Chicago Operations Office will continue to execute the laboratory's performance-based management and operating contracts.
- The Idaho Operations Office will establish a privatized regional waste treatment center at the Idaho National Engineering Laboratory.
- The Oakland Operations Office will include cost cutting strategies in our joint strategic plans with laboratories.

FIELD OPERATIONS PROGRAM DIRECTION

III. Performance Summary: (Cont'd)

- The Oak Ridge Operations Office will complete 100 percent of the development and design of facility-specific training modules, on-the-job training guides, and facility-specific exam banks for some 50 facilities.

- The Oak Ridge Operations Office will complete implementation of the ORO Emergency Operations Network, which will provide computer links for transfer of emergency information between the seven major ORO sites and the ORO Emergency Operations Center.

IV. Explanation of Funding Changes from FY 1996 to FY 1997:

- The increase of $8,991,000 in Salary and Benefits is due to an increase in severance costs in FY 1997; the restoration of awards and overtime; the full effect of the FY 1996 locality pay increase and pay raise; the partial year effect of the FY 1997 locality pay increase and pay raise and other base salary adjustments.

- Voluntary Separation in Pay increased $355,000, and is $3,000,000 in FY 1997 and covers 75 VSIP's.

- The increase of $5,100 in travel is due to an increase in the Office of Field Management's travel requirements.

- The increase of $187,000 in other related expenses is due to inflation.

V. Explanation of Average FTE Costs:

Overview:

- The average FTE cost for this account includes expenses that support administrative costs such as rental payments for office space, administrative data processing, printing, and other services and one time expenses for severance costs in FY 1997.

- The wide variance in the average FTE cost by office, reflects the different expenses incurred by the offices in this account. - All of the offices pay the rent for FTE's at their facilities. - The Office of Field Management provides Life Cycle Asset Management for the entire Department, which includes Architecture and Engineering contracts in support of cost estimating and contracts in support of project training and accounting. - The cost of advisory and assistance services varies by office, and for the multi-purpose offices the landlord expenses differ.

V. Explanation of Average FTE Costs: (cont'd)

Chicago:

- The average FTE cost includes expenses related to salaries and benefits, travel, training, communication, utilities, printing, support services, supplies and materials and capital equipment.
- The increase of $8,625 per FTE from FY 1996 to FY 1997 reflects the locality pay and pay raise in FY 1996 and partial increase in FY 1997, severance cost, communications and other services.

Idaho:

- The average FTE cost includes expenses related to salaries and benefits, travel, training, communication, utilities, printing, support services, supplies and materials, rental payments to GSA, and capital equipment.
- The increase of $6,065 per FTE from FY 1996 to FY 1997 reflects the locality pay and pay raise in FY 1996 and partial increase in FY 1997, severance cost, and other services.

Oak Ridge:

- The average FTE cost includes expenses related to salaries and benefits, travel, training, communication, utilities, printing, support services, supplies and materials, rental payments to GSA, and capital equipment.
- The increase of $6,463 per FTE from FY 1996 to FY 1997 reflects the locality pay and pay raise in FY 1996 and partial increase in FY 1997, severance cost, and rental payments to GSA.

Oakland:

- The average FTE cost includes expenses related to salaries and benefits, travel, training, communication, utilities, printing, support services, supplies and materials, rental payments to GSA, and capital equipment.

FIELD OPERATIONS PROGRAM DIRECTION

V. Explanation of Average FTE Costs: (cont'd)

- The increase of $16,758 per FTE from FY 1996 to FY 1997 reflects the locality pay and pay raise in FY 1996 and partial increase in FY 1997, severance cost, and rental payments to GSA.

Field Management:

- The average FTE cost includes expenses related to salaries and benefits, travel, training, communication, utilities, printing, support services, supplies and materials, rental payments to GSA, capital equipment and support of the Life Cycle Asset Management and project management systems that support the entire Department.

- The increase of $16,087 per FTE from FY 1996 to FY 1997 reflects the locality pay and pay raise in FY 1996 and partial increase in FY 1997, increase in VSIP, the reinstatement of awards and overtime, and increases in the Working Capital Fund.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Dollars in thousands, Narrative in whole dollars)

FIELD OPERATIONS
PROGRAM OBJECT CLASS SUMMARY

Personnel Compensation		FY 1995 Comp	FY 1995 Non Comp	FY 1996 Comp	FY 1996 Non Comp	FY 1997
11.1	Full-time permanent compensation	$ 62,682	$ 0	$ 58,513	$ 0	$ 60,872
11.2	Other than full-time permanent compensation	1,384	0	932	0	901
11.5	Other personnel compensation	2,398	0	322	0	1,733
11.9	Total Personnel Compensation	$ 66,464	$ 0	$ 59,567	$ 0	$ 63,506
12.1	Civilian personnel benefits	11,951	0	13,028	0	14,716
21.0	Travel and transport of persons	2,066	0	1,988	0	1,993
22.0	Transportation of things	164	0	142	0	146
23.1	Rental payments to GSA	4,379	0	4,167	0	5,328
23.2	Rental payments to others	1,722	0	1,509	0	1,425
23.3	Communications, utilities, misc. charges	2,664	0	2,401	0	2,692
24.0	Printing and reproduction	663	0	583	0	676
25.1	Advisory & Assistance services	5,453	0	9,442	0	9,442
25.2	Other Services	25,321	0	19,740	0	18,370
25.3	Purchase of goods & services from gov't accounts	2,007	0	2,141	0	2,193
26.0	Supplies & materials	1,535	0	1,518	0	736
31.0	Equipment	780	0	469	0	500
99.0	Subtotal, Direct Obligations	$ 125,169	$ 0	$ 116,695	$ 0	$ 121,723
	Reimbursable Programs	0	0	0	0	0
99.9	TOTAL OBLIGATIONS	$ 125,169	$ 0	$ 116,695	$ 0	$ 121,723
	Recovery of prior year obligations	0	0	0	0	0
	Unobligated balance available, start of year	2,264	0	3,780	0	0
	Unobligated balance available, end of year	0	0	0	0	0
	Budget Authority	$ 127,433	$ 0	$ 112,915	$ 0	$ 121,723

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY, SUPPLY RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, Narrative in whole dollars)

INFORMATION MANAGEMENT INVESTMENT PROGRAM

PROGRAM MISSION

The Information Management Investment Program supports the investment requirements of the Strategic Alignment Initiative to integrate information management within the Department. This program will fund Corporate Information Management investments. The Chief Information Officer, in conjunction with the Chief Financial Officer, will allocate information management investment funds to projects approved and prioritized by the Executive Council for Information Management.

The GOAL of the INFORMATION MANAGEMENT INVESTMENT PROGRAM :

Realize savings through consolidating information resource acquisitions, designing an information architecture for the Department and ensuring interoperability among all sites. Integrate information management systems within the Department.

The OBJECTIVE related to this goal is:

1. To fund prioritized corporate information management projects that will optimize the use of shared business systems and common data repositories, develop a system that will be able to support the Department's Corporate and local telecommunications infrastructure as opposed to having multiple systems to do the same support, and consolidate data centers through modernization of equipment and outsourcing information processing requirements to other Federal or commercial data centers. Other projects that would develop an information management infrastructure that organizes resources that support operational activities related to the generation, processing and delivery of information for the Department would be funded.

PERFORMANCE MEASURES:

Performance measure related to this program are quantitative.

1. Establish a Strategic Information Management process to align requirements with the business needs and establish a methodology for corporate information systems implementation within the Department.

2. Realize savings of $25,000,0000 in telecommunications integration and services acquisition over the next five years through acquisition streamlining and consolidation.

3. Establish an information architecture to support the Department's business line requirement and future information infrastructure.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

The Information Management Investment Program is a new program in FY 1997. It is managed by the Office of Human Resources and Administration (HR).

INFORMATION MANAGEMENT INVESTMENT PROGRAM
PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Information Management Investment Program	$ 0	$ 0	$ 0	$ 0	$ 14,900
Total, IMIP	$ 0	$ 0	$ 0	$ 0	$ 14,900

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FY 1997 Funding Summary:

The FY 1997 funding of $14,900,000 includes activities in these areas:

Corporate Information Systems consolidation, development and deployment. This effort will maximize the Departments' investment in information systems by reducing duplication of effort and optimizing the use of shared business systems and common data repositories. Investments in this area could be used to develop and implement corporate systems that have clear Business Cases/Plans like Human Resources Management Information System, Financial Management Information System, and Directives.

Acquisition Streamlining/Consolidation will allow the Department to "work smarter, not harder." An example of this is the acquisition of Telecommunications Integrator Services (TELIS). The TELIS would provide a nationwide telecommunications integrator services capability by FY 1998. TELIS would be able to support the Department's corporate and local telecommunications infrastructure. The acquisition and use of this service would save approximately $60,000,000 due to consolidating requirements of more than 50 of these sites nationwide.

Information Centers Consolidation is to achieve multi-year cost savings and improve public access to information. Information Center Consolidation may be either physical (combining two locations into one) or virtual (seamless access to information from divergent locations).

Data Center Consolidation is not only part of the Strategic alignment Initiative but it is also an Office of Management and Budget (Bulletin 96-02) requirement. This bulletin calls for agencies to:

- Reduce the total number of agency data centers during the next 24 months, by closing many currently operating data centers and concentrating their operations into a smaller number of physical locations.
- Collocate small and mid-tier computing platforms in larger data centers.
- Modernize remaining data centers in order to improve the delivery of service.
- Outsource Information processing requirements to other Federal or commercial data centers were appropriate.

Information Management Infrastructure is defined as organized resources that support operational activities related to the generation, processing and delivery of information. The infrastructure includes methods and procedures, Information Architecture, trained personnel, networks and installed processing equipment. Some examples of possible Information Management Infrastructure investment at the Department could include a shared network for the library, conolidating/enhancing telecommunications and streamlining Department-wide services.

Investment fund candidates currently include:

1) Corporate Structure for Life-Cycle Management of Electronic Scientific and Technical Information.
2) Telecommunications Integrator Service (TELIS) acquisition.
3) Shared library network.
4) Information Architecture.
5) Financial Management Information System.
6) Document Online Coordination System (DOCS).
7) Human Resource Management Information System.
8) Distance Learning.

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Solar and Renewable Energy

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
SOLAR AND RENEWABLE ENERGY
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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy Efficiency and Renewable Energy					
Solar and Renewable Resources Technologies					
Solar Energy					
Solar building technology research	4,349	1,942	5,000	3,058	157.5%
Photovoltaic energy systems	83,835	61,559	86,994	25,435	41.3%
Solar thermal energy systems	30,316	24,270	23,750	-520	-2.1%
Biofuels energy systems	52,340	53,671	80,890	27,219	50.7%
Wind energy systems	45,031	31,551	49,650	18,099	57.4%
Renewable energy production incentive program	4,659	662	3,489	2,827	427.0%
National renewable energy laboratory	5,963	2,000	5,000	3,000	150.0%
Resource assessment	3,847	1,942	——	-1,942	-100.0%
Solar and renewable energy deployment	28,869	14,671	8,509	-6,162	-42.0%
Total, Solar Energy	259,209	192,268	263,282	71,014	36.9%
Geothermal	45,437	33,392	35,600	2,208	6.6%
Hydrogen research	8,940	14,500	11,012	-3,488	-24.1%
Electric energy systems and storage	41,388	34,284	36,050	1,766	5.2%
Policy and management	17,792	13,975	17,301	3,326	23.8%
Total, Solar and Renewable Resources Technologies	372,766	288,419	363,245	74,826	25.9%
In-house energy management	30,632	342	5,700	5,358	1566.7%
Subtotal, Energy Efficiency and Renewable Energy	403,398	288,761	368,945	80,184	27.8%
Use of prior year balances	-9,630	-15,800	——	15,800	100.0%
Total, Energy Efficiency and Renewable Energy	**393,768**	**272,961**	**368,945**	**95,984**	**35.2%**

Executive Summary

The mission of the Office of Energy Efficiency and Renewable Energy is to work with our customers to lead the nation to a stronger economy, a cleaner environment, and a more secure future by developing and deploying sustainable energy technologies that meet the needs of the public and the marketplace.

Over the last two decades, the Department of Energy's energy efficiency and renewable energy -EERE- programs have produced remarkable successes for America's long-term economic growth, improved environmental quality and continued world leadership in technology. Few Federal programs have produced higher returns on the taxpayer dollar.

In 1995, an independent commission headed by energy expert Daniel Yergin confirmed that two dozen energy efficiency technologies developed with DOE funds are now "generating billions of dollars worth of annual consumer energy savings and new business opportunities, and playing an important role in job creation."

This EERE budget presents a portfolio of research activities directed at strategic national needs that will cost the public just under $1 billion this year -- but it not only addresses strategic national needs -- by the turn of the century it will have returned to the public every dollar spent and $4 billion more in energy cost savings alone. This return is the result of our R&D being particularly effective -- EERE research won nine R&D 100 awards in the 1995 International Competition "... for the most technologically significant new products." Since 1991 we have won 31 of these prestigious awards, six percent of those given in the last five years. This is more remarkable considering the EERE budget represents less than one-half of one percent of the total U.S. R&D budget.

New energy technologies are instrumental in solving complex interrelated environmental, social, and economic problems. For the government, delivering a new technology to the marketplace is a result of a series of research activities designed to test and develop good ideas that would not otherwise be undertaken by business because of the high individual risk, difficulty in capturing a return on the initial investment, complex cross-cutting nature of the effort, or public nature of the benefits are inappropriate to their necessarily near-term market focus. These research stages involve constant collaboration with customers and partners and include: concept development, market and technical feasibility studies, system and component design, research plans, research, prototype construction and testing at many stages, scale-up demonstrations, and an array of deployment activities. Collectively the stages constitute a research "pipeline" to energy product markets.

In 1997, the Office of Energy Efficiency and Renewable Energy plans over 225 R&D projects in various stages of the research pipeline. This year we expect to work with 940 major partners including consortia, laboratories, industry groups, states and retailers that will conduct R&D and help deploy EE/RE technologies to thousands of sites and users including foreign countries, 50 clean cities, all 50 states, 800 utilities, 1000 industrial partners and thousands of buildings and demonstration fleet vehicles. Those partner-customers of EERE technologies lead the deployment of energy technologies that will address the needs of the public and the marketplace.

The challenge DOE faces in FY 1997 is to produce beneficial new technologies with fewer resources, maintaining the vital contribution of energy efficiency and renewable energy in the Administration's and Congress' vision. To accomplish this goal, DOE's FY 1997 Budget Request proposes funding for programs that will leverage significant non-Federal investments and will produce high economic, environmental and energy-security benefits, while accelerating the entry of U.S. technologies into the global marketplace.

By the year 2000, the $1 billion investment contained in EERE's 1997 budget, will pay for itself five times over in the value of energy cost savings that every United States energy consumer will receive. As these savings are spent on domestic goods rather than foreign oil, billions of dollars will be added to the U.S. economy. Just as importantly the investment in EERE technologies will prevent millions of tons of air, water and ground pollution benefitting every person in the United States, particularly the 150 million people living in the 190 areas of the country with poor air quality. EERE technologies provide these benefits without a single law and renewable energy, regulation, rule or incremental cost to consumers, industry or business.

Energy Efficiency and Renewable Energy Programs Represent an Appropriate Government Role in Technology R&D

Technology development is the key driver of long term economic strength for our nation. Sustained economic expansion will result if there are steady increases in the efficiency of the production processes. Technology is the key *enabling input* because it increases the efficiency with which inputs are used, thereby enabling a country to produce more with less. The practical outcome of technologies is marketable products, which when produced with energy using technologies are more competitive in two ways. First, the products cost less to make and thus sell. Second, the energy efficiency technologies themselves cost less to operate and thus are more attractive to consumers. Realizing this fact, governments around the world have historically invested in scientific research and technology development.

If the marketplace functioned perfectly, Federal initiatives might not be needed to help the private sector research and develop promising new energy technologies. But changes in the marketplace, industrial restructuring and the nature of technology development have all acted to discourage investments in technology R&D in many areas. These changes include:

- downsizing operations resulting in cuts in company investments in high-risk, long-term research;
- skyrocketing costs of increasingly specialized research that most individual companies are unable to bear;
- difficulties in protecting intellectual property rights in a global economy and consequent inability to recoup major R&D investments;
- the breakneck pace of technological and market change;
- the complex, cross-cutting nature of much modern R&D - such as advanced materials - that cuts across companies and traditional disciplines; and
- the lack of alignment between the near term priorities of individual companies and the strategic interests of the nation.

These changes do not mean that the federal government should have a role in all technology R&D. However, carefully targeted federal involvement in close partnership with the private sector can help the marketplace function more efficiently and facilitate the development of American competitive advantage in technologies that might otherwise be developed by our global competitors. The federal government should consider funding a technology if:

- there is a high social rate of return;
- it fulfills a strategic national need; and,
- the private sector cannot develop it alone.

The energy efficiency technology research and development programs in the FY 1997 Conservation budget request are all conducted in partnership with private stakeholders and are carefully selected to meet the above criteria. These programs are developing critical technologies that would otherwise not occur at all, would be delayed substantially, or would be captured by competitors if it were not for the federal government role.

The federal government has played a pivotal role in developing the world's most successful system of research and development. Maintaining the vigor of research and development is important - indeed essential - to the nation's future and will require the ability to increase funding for new opportunities selectively, even while reducing the overall budget. (*Allocating Funds for Science and Technology*, National Academy of Sciences 1995.)

Situation Report

The following factors were considered in the FY 1997 Congressional Budget Request for energy efficiency and renewable energy:

- National Science Foundation data indicate that the U.S. investment in R&D is in decline. Since 1987, Federal R&D investments have dropped steadily in real terms. Since 1992, industry R&D has stagnated. And today, less than one-third of private R&D is dedicated to research; the rest is being spent on product and process development.

- At a time of increased public concern about environmental quality and the rising costs of environmental compliance for businesses, energy efficiency and renewable energy technologies offer pollution prevention solutions that often pay for themselves through energy savings and waste reduction.

- As a percent of gross national product, the U.S. national investment in non-defense R&D remains well below that of Japan and Germany. U.S. energy efficiency, measured as energy consumption per dollar of gross domestic product, also remains well below that in Germany and Japan.

- U.S. oil imports are at record levels, are continuing to grow, and could to reach nearly 60 percent by 2005. Oil imports that high would "contribute" nearly $90 billion to the trade deficit and, according to a Department of Commerce analysis earlier this year, constitute a threat to U.S. economic security. Persian Gulf countries are projected to control 70 percent of the global market for oil by 2010 - making world oil markets increasingly unstable.

- Energy consumption continues to have a real impact on individual Americans. The typical American family of four is spending $2,200 each year on energy -- more than all other expenses except housing.

- Energy efficiency and renewable energy technologies save money, prevent pollution and create jobs today and tomorrow. These technologies range from the advanced wind turbines that provide commercial electricity for more than one million Americans, to more energy efficient appliances in virtually every kitchen, to electronic ballasts saving up to 30 percent on lighting costs - all developed with DOE support. Research on many of tomorrow's best energy technologies is supported by DOE today. Significant Federal disinvestment in this research will lose or substantially delay these technologies and their benefits. By the year 2000, for example, a 10% budget cut would increase U.S. energy costs by nearly $1 billion, reduce net new jobs in the economy by 7,000, increase air pollution by nearly 4 million metric tons of carbon equivalent, and add hundreds of thousands of tons of sulfur dioxide and nitrogen oxide pollutants to the environment.

Alignment with Administration Priorities

The energy efficiency and renewable energy programs proposed by DOE for FY 1997 will continue progress toward achieving key goals of the Administration's research and development agenda:

- **Building International Competitiveness with Technology**. Technology development is the key driver of long term economic growth for our nation. Sustained economic growth is dependent upon steady increases in the efficiency of the production processes. Technology is the key *enabling input* because it increases the efficiency in which inputs are used, thereby enabling a country to produce more with less. Realizing this fact, governments around the world have historically invested in scientific research and technology development. The federal government has played a pivotal role in developing the world's most successful system of research and development. Maintaining the vigor of research and development is important - indeed essential - to the nation's future and will require the ability to increase funding for new opportunities selectively, even while reducing the overall budget. (*Allocating Funds for Science and Technology*, National Academy of Sciences 1995.)

- **Maintaining world leadership in science, engineering and mathematics**. DOE's National Renewable Energy Laboratory, for example, has won 17 R&D 100 awards since 1982. (R&D 100 awards recognize the nation's most important technological advances.) In the last year alone, widely praised technological breakthroughs among DOE's national laboratories included a new, flexible superconducting material; a new type of lighting system -- the Sulfur Lamp -- that will revolutionize how buildings are illuminated; a new insulating material 10 times more effective than fiberglass; a biologically engineered bacteria that will make it cheaper to produce ethanol fuel from wastes and energy crops; and an improved method for making high-quality ceramic powders to manufacture industrial products.

  Promoting long-term economic growth that creates jobs. A growing body of analysis concludes that money invested in energy efficiency produces more jobs than money invested in conventional power production and in a host of other common economic activities. Newly published case studies demonstrate that energy efficiency technologies not only cut costs and save jobs for businesses, but significantly improve their productivity. Estimated annual energy cost savings resulting directly from supporting the 1997 programs are nearly $11 billion per year by the year 2000 and over $70 billion by 2010. Other cost savings in industry (increased production and reduced environmental compliance) are estimated at $20 billion by 2000 and $66 billion by 2010. Resulting job creation is expected to be 19,000 by 2000 and 180,000 by 2010.

  Improving the nation's environmental quality. In developing and promoting the efficient use of clean energy resources, DOE's energy efficiency and renewable energy programs result in reduced air, water and ground pollution, often reducing industry environmental compliance costs, concurrent with reduced

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production costs. In other words, these technologies make environmental progress compatible with economic growth and improved productivity. Estimated reductions in greenhouse gas emissions alone are projected to be 38 million metric tons (MMT) in 2000 and over 150 MMT by 2010. Similar substantial reductions in other air emissions and waste production are projected.

Strategic Priorities

The DOE energy efficiency and renewable energy budget request supports a balanced portfolio of high-priority technology research and development that will achieve the above goals. Key priorities include:

- A Presidential public Partnership for a New Generation of Vehicles (PNGV), including advanced materials, energy storage, and other new technologies that will triple the efficiency of U.S. transportation while improving safety and environmental quality;
- Technologies that concurrently meet energy, economic, and environmental objectives, deployed voluntarily through the Climate Change Action Plan;
- Advanced construction and building technologies;
- Advanced biotechnologies;
- Advanced power generation technologies using renewable energy resources and building upon recent advances in superconductivity, energy storage and system control technology;
- Technologies leading to improved energy and resource efficiency of energy-intensive industries, which reduce environmental emissions and cut business compliance costs; and
- Investments in federal energy efficiency that cut government operating costs.

These technologies and many others are developed and delivered through five mechanisms:

- **basic and applied research** to help industry develop new energy efficiency technologies that are clean and competitive globally;
- **cost-shared** demonstration projects with industry to test, prove and measure the benefits of new energy technologies;
- **market collaboratives**, in which DOE creates partnerships between industry, state and local governments, other government agencies, universities, nonprofit organizations and others to speed the commercialization of the latest energy technologies;
- **grants to states** and low income Weatherization providers to accelerate the local application of energy efficiency technologies; and
- **information and education** programs to help ensure that consumers have up-to-date and accurate information as they make their energy choices.

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To maintain program excellence while minimizing costs, DOE's energy efficiency and renewable energy programs reflect these principles emphasized by the Administration:

Peer Review: In addition to the Yergin Commission review quoted above, DOE's energy efficiency and renewable energy programs for FY 1997 reflect an internal evaluation and prioritization process. Based on the A.D. Little & Co.'s "Third Generation" R&D portfolio analysis, the Office of Energy Efficiency and Renewable Energy has conducted an intensive analysis of all our historic programs resulting in 56 key programs comprised of our highest priority projects. Completions, efficiencies and strategic review based consolidations, scope and schedule changes, and terminations allowed us to reduce our spending while maintaining our priorities.

Joint Funding: One method for insuring our technologies are market directed is to collaborate and increasingly cost share our technology development as it moves from basic research to product development. DOE routinely requires cost sharing from industries, states and other program partners ranging from a fractional partners share in risky research to a dominant cost-sharing for scale-up and deployment efforts. The department's goal is to achieve maximum leveraging from Federal funds. In one recent case, for example, $500,000 in Federal funds were used to attract nearly $33 million in state, local and private funds to DOE's Rebuild America program, an initiative that implements energy efficiency technologies in commercial and government buildings at the state and local level.

Multiple Goals: Few Federal programs produce such diverse benefits. Benefits from DOE's energy efficiency and renewable energy activities include: reduced pollution and related health-care costs; reduced oil imports; lower trade deficits; increased local and national economic security; maintaining the key U.S. competitive advantage of low energy prices; lower consumer energy bills; lower taxpayer costs for energy consumption in public buildings; increased industrial competitiveness; competitive U.S. products for vibrant new export markets; reduced threats of future military actions to assure foreign energy supplies; the creation of new industries and jobs; and hands-on educational opportunities for the next generation of scientists and engineers. DOE energy efficiency and renewable energy programs produce consequential benefits across all these categories this year and will for years into the future.

Performance Measures: The Office of Energy Efficiency and Renewable Energy has developed a peer-reviewed "quality metrics" system that allows DOE to set concrete goals, measure program progress, impacts and success. This evolving strategic management process, while providing valuable

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input to program planning and improvement, anticipates and exceeds the requirements of the Government Performance and Results Act of 1994.

The FY 1997 Budget Request Represents a New Way of Delivering Returns to Taxpayers

In addition to modifying our portfolio to meet new futures, the Office of Energy Efficiency and Renewable Energy is re-engineering HOW we offer it. We are reinventing how government interacts with the private sector.

Rather than command-and-control mandates, we are working more closely with the American public, our customers, building voluntary partnerships with industry, business, state and local governments and energy consumers. Instead of assuming that government knows best, we are using the talent and creativity of our customers to help design and implement these programs. We are replacing regulation with collaboration.

Rather than relying on taxpayers to bear all costs, we are using relatively small amounts of Federal money to leverage large amounts of private investment.

Rather than "one size fits all" programs, we are stressing flexibility and innovation. And rather than sweeping, over-reaching programs, we are helping America move to a new energy future through a balanced program of next generation technologies and market driven incremental improvement - taking small innovative, imaginative but manageable steps.

In a time of fiscal austerity, we are cutting administrative costs and overhead, downsizing operations and learning how to operate more efficiently.

We are committed to continuous improvement, customer involvement and market-driven action. We are striving to operate more like a business, and less like a bureaucracy.

Rather than vague promises of progress, we are setting clear goals and annual progress targets so that we may show that technologies with inherent risk are making expected progress or needed adjustments to deliver the better future and larger bang for the buck that taxpayers need, demand and deserve.

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SOLAR AND RENEWABLE RESOURCE TECHNOLOGIES

PROGRAM MISSION

Energy is fundamental to the general welfare of a modern nation. This is especially true for the U.S. where the wide availability of affordable and reliable energy drives the engines of our economy and supports our comfortable standard of living. Continued availability of low cost energy is important to all American citizens and is properly a concern for Federal officials. While current energy supplies are generally adequate, growing domestic demand and major increases in worldwide demand lead inexorably toward periodic supply disruptions, scarcity of selected fuels, and price instabilities. With large populations in emerging nations annually creating new appetites for energy driven commodities and services, and with their leaders striving for immediate fulfillment, we are witnessing a concentration of energy resources on raw supply systems, to the detriment of control systems, ultimately leading in turn to undesirable, and potentially unacceptable, environmental consequences. It becomes clear that business-as-usual methods alone will not be adequate for the future. New options will be needed to complement and assist efforts to expand current energy systems. The family of renewable systems proposed in this budget request -- winnowed during the 1980s from examination of over 3 times the technologies presented herein -- offer the most attractive and complete set of energy options to potentially fill this need. The characteristics of environmental friendliness, domestic availability and, once installed, inherent resistance to price escalation that accompany their use constitute an undeniable set of benefits that make adoption of renewable systems a positive step for the U.S. and for other nations as well. Simply stated, the activities and programs described below will establish and ensure clean choices for our energy future.

The Solar and Renewable Resource Technologies Program funds research and development in two related areas. First, the Program supports R&D of new, efficient, reliable and environmentally sound renewable energy technologies for the utility, transportation, industrial, and buildings sectors. Second, Program funding supports R&D related to advanced utility system technologies necessary for integration of renewable energy systems into the utility grid. In addition, the Program provides support for the initial deployment of solar and renewable energy technologies into domestic and international markets.

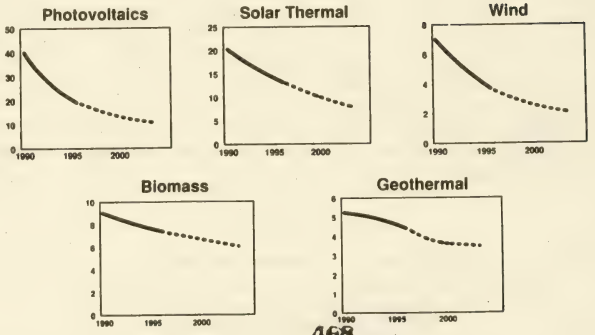
Past funding of these R&D activities has yielded remarkable results with respect to renewable energy technology efficiency and economics, bringing the concept of a renewable-based electric power system closer to

reality. Royal/Dutch Shell Company's planning group, an internationally recognized leader in energy forecasting and planning, projects significant market share for renewable energy technologies in the first decades of the 21st century, largely based on the technology cost reductions spurred by DOE's R&D investments. The following figures illustrate the dramatic progress made in reducing the costs of these technologies in recent years:

Cost of Electricity

(cents/kWh)

(levelized constant 1995$)



PROGRAM MISSION - SOLAR AND RENEWABLE RESOURCE TECHNOLOGIES (Cont'd)

The Program's funding request for Fiscal Year 1997 is driven by three objectives central to achieving long-term success:

1. Maintain U.S. technological superiority in renewable energy and advanced utility system technologies by funding a balanced portfolio of R&D in renewable systems and supporting electric technologies.

2. Improve environmental quality through increased use of non-polluting renewable energy technologies, and advanced electric power systems.

3. Expedite technology transfer to, and promote the competitiveness of the U.S. renewable energy industry by building export potential for renewable energy technologies through technological superiority and improved manufacturing processes for renewable energy devices and systems.

OUT BENEFITS:

Analysis of OUT program benefits indicates that by 2010, 1.2 to 1.7 quads per year of primary energy will be displaced by clean manufactured renewable energy. This is equivalent to not building one hundred coal power plants of 250 MW each. This energy savings will result in multiple benefits for the country. Up to 35 million metric tons of potential carbon equivalent emissions will be reduced, helping the country meet its energy needs without harming the global environment. There are also huge potential economic benefits from the sale of OUT-related technologies in international electricity markets. The International Energy Agency forecasts that by the year 2010, the world will add 1,400,000 MW of electricity capacity, 50% of which will be in developing countries. Over this period, the export market potential for renewable energy technologies is greater than $1 trillion.

PERFORMANCE MEASURES:

1. Market penetration and technology substitutions: The ultimate success of an R&D program is in the commercial application of the technology. The commercial applications we see today are the results of R&D conducted several years earlier

Thus, while commercialization is the best measure of the success of an R&D program over time, it is not a reliable indicator of the success of any given year's R&D efforts. The performance objectives of the Solar and Renewable Resource Technologies Program for U.S.-produced systems installed domestically and overseas in the year 2000 are:

PROGRAM MISSION - SOLAR AND RENEWABLE RESOURCE TECHNOLOGIES (Cont'd)

-- Photovoltaics: 500 megawatts installed domestically and 200 megawatts overseas.

-- Solar Thermal Electric: 400 megawatts domestic and 200 megawatts overseas.

-- Wind: 3,700 megawatts domestic and 4,000 overseas.

-- Geothermal: 500 megawatts domestic and 2,500 megawatts overseas, installed or under development. Reduce electric peak loads by 2,000 megawatts from domestic Geothermal Heat Pumps.

-- Biofuels: 1,200 megawatts of new electric power domestic, and 800 megawatts overseas; 600 million gallons of biomass-derived transportation fuels produced per year.

-- Solar Domestic Hot Water: Increase market penetration rate by 40 to 60 percent.

2. Reduction in the cost of energy from renewable technologies. As these costs come down, market opportunities increase providing the basis for further cost reductions. Program cost reduction goals for the year 2000 are as follows:

-- Photovoltaics: 10 to 15 cents per kilowatt-hour, from the current level of over 20 cents.

-- Solar Thermal Electric: Less than ten cents per kilowatt-hour from approximately 17 cents (solar only mode) today.

-- Wind: 2.5 cents per kilowatt-hour for good wind areas from the current four to five cents.

-- Geothermal: 3.5 cents per kilowatt-hour for average grade resources compared to current 5 to 8 cents per kilowatt-hour.

-- Solar Domestic Hot Water: 25-40 percent reduction in installed cost.

-- Biofuels: Reduce the cost of ethanol from biomass by 50 percent by the year 2010 from the current cost of $1.22 per gallon.

3. Improvement of technical indices of system performance: These include photovoltaic conversion efficiency, wind turbine efficiency, geothermal power plant conversion efficiencies, and improving the hot-gas cleanup performance of biomass-powered thermal systems.

PROGRAM MISSION - SOLAR AND RENEWABLE RESOURCE TECHNOLOGIES (Cont'd)

4. Initiate and complete proof-of-concept and demonstration projects. All solar and renewable energy technology programs incorporate pilot-scale projects as key elements in the demonstration of the capability and economics of renewable technologies. The ability to successfully complete such projects with industry partners as part of an integrated R&D program is key.

The fiscal year 1997 Solar and Renewable Technology Program is designed to build upon these accomplishments through a focused and intensive R&D effort. This effort will be guided by a strong analytical capability and close consultation and collaboration with the companies and customers that will carry successful technologies into the market.

Key milestones for the renewable energy technology are summarized in the following chart.

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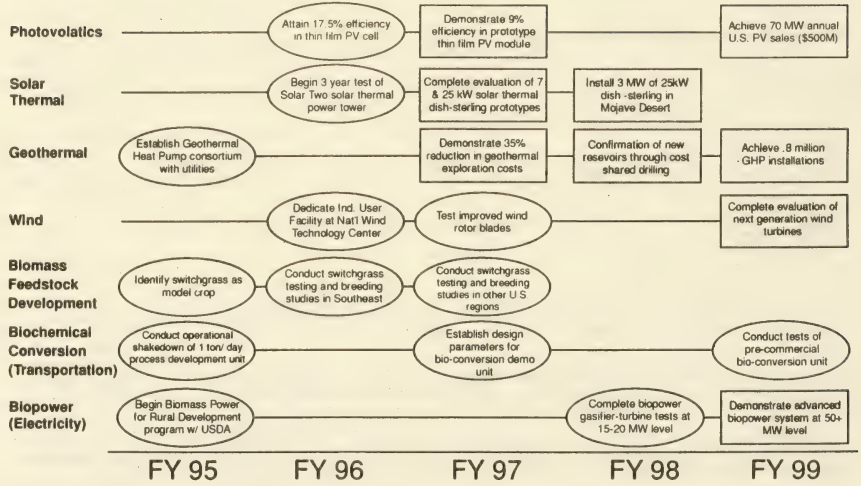
RENEWABLE ENERGY

Key Milestones



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FY 1997 Congressional Budget Request
Solar and Renewable Resource Technologies
Program Funding Profile

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
New Structure:					
Solar Building Appliances R&D	$4,349		$1,942	$1,942	$5,000
Photovoltaic Systems R&D	83,835		61,559	61,559	86,994
Solar Thermal R&D	30,316		24,270	24,270	23,750
Biofuels	52,340		53,671	53,671	80,890
Wind Energy	45,031		31,551	31,551	49,650
Renewable Energy Production Incentive Program	4,659		662	662	3,489
Resource Assessment	3,847		1,942	1,942	0
Solar and Renewable Energy Deployment	28,869		14,671	14,671	8,509
Geothermal Energy R&D	45,437		33,392	33,392	35,600
Hydrogen Research R&D	8,940		14,500	14,500	11,012
Electric Energy Systems and Storage	41,388		34,284	34,284	36,050
National Renewable Energy Laboratory	5,963		2,000	2,000	5,000
Program Direction	17,792		13,975	13,975	17,301
Total	$372,766		$288,419	$288,419	$363,245
Use of prior year balances	(9,287)		(15,800)	(15,800)	0
Total	$363,479		$272,619	$272,619	$363,245
Old Structure:					
Solar Building Technology Research		$2,000	($2,000)		
Photovoltaic Systems		65,000	(65,000)		
Solar Thermal Energy Systems		25,000	(25,000)		
Biofuels Energy Systems		55,300	(55,300)		
Wind Energy Systems		32,500	(32,500)		
Ocean Energy Systems		0	0		
Solar International Programs		4,000	(4,000)		
Solar Technology Transfer		4,300	(4,300)		
Solar Program Support		0	0		
Resource Assessment		2,000	(2,000)		
Geothermal Energy		30,447	(30,447)		
Electric Energy Systems		28,924	(28,924)		
Energy Storage Systems		2,000	(2,000)		
Hydrogen		14,500	(14,500)		
National Renewable Energy Laboratory		2,000	(2,000)		
Program Direction		11,800	(11,800)		
Hydropower Program		1,500	(1,500)		
Total		281,271	(281,271)		
Use of prior year balances		(6,058)	6,058		
Total		$275,213	($275,213)		

1. Use of prior year balances - total $9,287 which includes $4,267 for general reduction, $3,020 for rescission, and $2,000 for geothermal reprogramming.

Authorizations:

P.L. 94-163, "Energy Policy and Conservation Act" (EPCA) (1975)
P.L. 94-385, "Energy Conservation and Production Act" (ECPA) (1976)
P.L. 95-618, "Energy Tax Act of 1978"
P.L. 95-619, "National Energy Conservation Policy Act" (NECPA) (1978)
P.L. 95-620, "Powerplant and Industrial Fuel Use Act of 1978"
P.L. 96-294, "Energy Security Act" (1980)
P.L. 100-12, "National Appliance Energy Conservation Act of 1987"
P.L. 100-615, "Federal Energy Management Improvement Act of 1988"
P.L. 101-218, "Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989"
P.L. 101-549, "Clean Air Act Amendments of 1990"
P.L. 101-575, "Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990"
P.L. 102-486, "Energy Policy Act of 1992"
P.L. 95-91, "Department of Energy Organization Act" (1977)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, narrative in whole dollars)

FIELD OFFICE FUNDING BY SITE
SOLAR AND RENEWABLE RESOURCE TECHNOLOGIES

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget
ALBUQUERQUE OPERATIONS OFFICE					
Albuquerque Operations Office	$ 2,370	2,175	$ 0	$ 2,175	$ 2,435
Los Alamos National Laboratory	7,926	6,005	0	6,005	5,400
Sandia National Laboratory	45,585	32,634	0	32,634	39,138
Subtotal, ALBUQUERQUE OPERATIONS OFFICE	$ 55,881	40,814	$ 0	$ 40,814	$ 46,973
CHICAGO OPERATIONS OFFICE					
Argonne National Laboratory	$ 4,370	3,350	$ 0	$ 3,350	$ 3,800
Brookhaven National Laboratory	2,653	2,030	0	2,030	2,200
Atlanta Support Office	457	15	0	15	50
Boston Support Office	1,500	1,200	0	1,200	985
Chicago Support Office	790	565	0	565	285
Denver Support Office	7	8,795	0	8,795	510
New York Support Office	810	0	0	0	0
Philadelphia Support Office	0	0	0	0	10
Seattle Support Office	795	590	0	590	305
Subtotal, CHICAGO OPERATIONS OFFICE	$ 11,382	16,545	$ 0	$ 16,545	$ 8,145
GOLDEN FIELD OFFICE					
Golden Field Office	$ 41,156	40,689	$ 0	$ 40,689	$ 79,566
National Renewable Energy Laboratory	146,055	100,600	0	100,600	129,625
Subtotal, GOLDEN FIELD OFFICE	$ 187,211	141,289	$ 0	$ 141,289	$ 209,191
IDAHO OPERATIONS OFFICE					
Idaho Operations Office	$ 12,679	14,538	$ 0	$ 14,538	$ 16,580
Idaho National Engineering Laboratory	2,820	1,150	0	1,150	1,150
Subtotal, IDAHO OPERATIONS OFFICE	$ 15,499	15,688	$ 0	$ 15,688	$ 17,730

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, narrative in whole dollars)

FIELD OFFICE FUNDING BY SITE
SOLAR AND RENEWABLE RESOURCE TECHNOLOGIES

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget
OAKLAND OPERATIONS OFFICE					
Lawrence Berkeley Laboratory	$ 300	300	$ 0	$ 300	$ 200
Lawrence Livermore National Laboratory	1,100	1,100	0	1,100	1,000
Subtotal, OAKLAND OPERATIONS OFFICE	$ 1,400	1,400	$ 0	$ 1,400	$ 1,200
OAK RIDGE OPERATIONS OFFICE					
Oak Ridge Operations Office	$ 1,275	1,400	$ 0	$ 1,400	$ 1,300
Oak Ridge National Laboratory	18,498	13,547	0	13,547	14,326
Subtotal, OAK RIDGE OPERATIONS OFFICE	$ 19,773	14,947	$ 0	$ 14,947	$ 15,626
RICHLAND OPERATIONS OFFICE					
Pacific Northwest Laboratory	$ 2,142	1,300	$ 0	$ 1,300	$ 800
OAKLAND OPERATIONS OFFICE					
Energy Technology Engineering Center	$ 8,100	0	$ 0	$ 0	$ 0
Morgantown Energy Technology Center	0	1,000	0	1,000	1,000
Pittsburgh Energy Technology Center	240	0	0	0	0
Subtotal, OAKLAND OPERATIONS OFFICE	$ 8,340	1,000	$ 0	$ 1,000	$ 1,000
HEADQUARTERS	$ 71,139	57,246	$ 0	$ 57,246	$ 62,580
Adjustments					
Unobligated Carryover		(1,810)		(1,810)	
TOTAL	$ 372,767	288,419	$ 0	$ 288,419	$ 363,245

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, narrative in whole dollars)
SOLAR AND RENEWABLE RESOURCE TECHNOLOGIES

	Personnel Compensation	FY 1995	FY 1996	FY 1997
11.1	Full-time permanent	9,857	9,972	10,094
11.3	Other than full-time permanent	45	40	20
11.5	Other personnel compensation	49	40	20
11.9	**Total Personnel Compensation**	**9,951**	**10,052**	**10,134**
12.1	Civilian personnel benefits	1,868	2,021	2,005
12.2	Military personnel benefits	0	0	0
13.0	Benefits for former personnel	25	0	0
21.0	Travel and transportation of persons	846	790	681
22.0	Transporation of things	0	0	0
23.1	Rental payments to GSA	0	0	0
23.2	Rental payments to others	765	747	770
23.3	Communications, utilities, and misc. charges	35	0	0
24.0	Printing and reproduction	58	0	0
25.1	Advisory & Assistance Services	890	0	0
25.2	Other services	616	0	0
25.3	Purchases of goods & serv'. from Gov't accounts	30	0	0
25.4	Operation of GOCOs	0	0	0
25.5	Research and development contracts	348,033	271,056	337,283
26.0	Supplies and materials	169	0	0
31.0	Equipment	6,730	2,253	9,572
32.0	Land and structures	2,750	1,500	2,800
99.0	**Solar and Renewable Resources Technologies**	**372,766**	**288,419**	**363,245**

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I. Mission Supporting Goals and Objectives:

A. Program Description

The mission of the Solar Buildings Appliances R&D Program is to conduct the research and development (R&D) necessary to develop energy producing technologies that will provide economically competitive sources of energy in buildings for our nation. These environmentally clean U.S. based energy technologies will ensure a more secure energy future. This program will work with partners and customers to ensure that technologies are developed that will meet the needs of the public and the marketplace, improve the environment and guarantees continued global competitiveness. R&D goals are to develop solar building technologies which are competitive with electricity in the near term and gas/oil in the long term. The objective is to support R&D activities which are integral to advancing the science and technology base that will maintain steady progress to overcome the remaining barriers of reliability, consumer awareness/confidence, and high first cost, allowing accelerated technology deployment in the conservative building sector.

Since the mid-1970's an estimated 1.2 million active solar water heating systems have been installed nationwide, generating an estimated 25,000 job-years of employment. Export sales over the last ten years have exceeded domestic sales by a factor of 3 to 1. Additionally, the U.S. solar building industry has experienced steady market growth rates of 15-20% in both domestic and international market sectors in recent years. While this is great progress, it represents only 1% of the domestic and a minor fraction of the international water heating market potential. The solar water heating industry consits of fragmented and small entrepreneurial businesses in a labor intensive business which provides almost exclusively low to moderate income blue collar jobs. This fledgling industry does not have, nor can it afford, the kind of technical expertise provided by the solar program in addressing significant technical barriers to the widespread utilization of this promising technology. Technical feasibility and market viability has been established, but widespread utilization of this technology requires a sustained solar buildings program effort in partnership with the industry.

Today the industry is experiencing a tremendous rebirth of interest and slow, but steady growth within the public and private sector, including a collaborative involving almost 100 utilities with the potential for providing additional market penetration growth of 100-300% in the next 3-5 years. This growth requires the technical reassurances provided by the specific activities of the Solar Buildings Appliances R&D Program. These activities will be instrumental in developing a technology base which will reduce the cost of solar water heating to 4 cents per kWh and the cost of solar air heating to 1 cent per kWh. Achieving these goals

I. Mission Supporting Goals and Objectives: SOLAR BUILDINGS APPLIANCES R&D (Cont'd)

will make these technologies very cost-competitive with electricity (for water heating) and natural gas (for air heating), allowing significant market penetration.

The Solar Buildings Appliances R&D program has invested in solar technologies for building applications since 1974. After federal tax credits expired in 1985, efforts focused on the most cost-effective applications such as solar domestic hot water (SDHW), and the cost of solar energy has dropped from about 20 cents per kWh in 1980 to about 8 cents per kWh today. Research supports by DOE also led to a technical breakthrough (the transpired solar collector) which reduced the cost of solar air heating from about 20 cents per kWh in 1980 to about 2 cents per kWh today by increasing system efficiency from 30% to 70% and reducing system costs by a factor of 5.

More than one million solar systems have been installed in residential and commercial buildings in the U.S. These systems currently displace more than 2600 megawatts (thermal energy equivalent) and 840 megawatts of utility peak demand. However, this is less than 1% of the potential buildings market. To increase market penetration, the program has parallel efforts in: 1) quality assurance activities to ensure deployment of certified and tested systems, 2) technology deployment activities collaborating with the solar industry, utilities, and energy service companies (ESCOs) to develop effective means to deliver the technology to end-users, and 3) technology development activities to develop advanced designs to reduce the costs of delivered energy so that it meets end-user cost-effectiveness requirements in most parts of the United States.

Quality Assurance. The program, working in collaboration with the industry, is finalizing a major effortin development of a national rating and certification program to address quality assurance issues.

Technology Deployment. The program is working with interested utilities in the USH2O (utility solar hot water) initiative to develop the energy service company (ESCO) approach for delivering solar water heating to end-use customers in new utility programs across the country.

Technology R&D. The major future thrust for the program will be focused on technology R&D. Today's solar building technologies have the advantage of competing with retail utility rates rather than utility generation costs and are in theory cost-effective on a life-cycle cost basis. However, to actually achieve significant market penetration, these technologies must provide the very short paybacks (or high rates of return) required by end-users. By bringing costs down to 4 cents per kWh for solar water heating and 1 cent per kWh for solar air heating by 2000, the Solar Buildings Appliances R&D program will help make solar heating a cost-effective option for residential and non-residential end-users across the country. The program will also conduct R&D to develop new cost-effective applications for low-temperature solar technologies.

I. Mission Supporting Goals and Objectives: SOLAR BUILDINGS APPLIANCES R&D (Cont'd)

A program strategy of industry cost-shared research and development and mass procurement of advanced technologies in the electric utility, building, and government sectors is expected to decrease cost by 50-75%, resulting in widespread use. By the year 2000, solar building technologies will produce $90 million in annual energy savings and an annual reduction of 0.24 million metric tons of carbon equivalent.

B. Estimates of Benefits:

At the proposed funding levels, the Solar Buildings Appliances R&D Program is expected to yield the following quantifiable benefits:

	2000	2010	2020
Total Primary Energy Displaced (Billion BTUs)	12,000	27,000	91,000
Total Cost Savings (Millions $ 1995)	$90	$229	$813
Carbon Equivalent Emissions (MM Tons)	0.24	0.60	2.04

C. Performance Measures (highlights):

Goals for 2000

The following performance measures will allow the Solar Buildings Appliances R&D Program to determine progress toward the program goals for 2000 of reducing the cost of solar water heating from 8 cents per kWh today to 4 cents per kWh and the cost of solar air heating from 2 cents per kWh today to 1 cent per kWh. Additionally these measures will assure progress towards increasing system life expectancies from a range of 10-15 years to 15-20 years for both hot water and air heating systems. These cost reduction goals will be accomplished by R&D activities focused quality assurance of the current technology, technology development of advanced hardware and manufacturing processes, and technical support to assure successful entry into mass markets providing economies of scale soon as the utility - energy service company solar initiatives.

1996 Performance Measures

-- 1-2 additional utility cost-shared solar building initiatives in place for promoting mass markets for 10-20% reduction in installed system cost.

-- Complete the conceptual design of an optimum balance-of-system and identify key component development needs for low-cost solar domestic hot water systems with potential for 20-30% reduction in installed system

I. Mission Supporting Goals and Objectives: SOLAR BUILDINGS APPLIANCES R&D (Cont'd)

cost.

-- 3-6 states/utilities using industry voluntary rating and certification procedures.

-- National sales of 6,250 solar domestic hot water systems (0.18% of 1993 total annual market).

1997 Performance Measures

-- 2-4 additional utility cost-shared solar building initiatives in place for promoting mass markets for 10-20% reduction in installed system cost.

-- Initiate prototype development of industry cost-shared initiatives for next generation of solar domestic hot water equipment with 25-40% increased cost effectiveness.

-- Initiate industry cost-shared development of fully-certified integrated balance of system/tank module to meet national building codes leading to a 15-25% reduction in installed cost with increased service reliability/durability.

-- 9-12 states/utilities using industry voluntary rating and certification procedures.

-- National sales of 12,250 solar domestic hot water systems (0.36% of 1993 total annual market).

1998-99 Performance Measures

-- Total of 10-15 utility solar building initiatives in place for promoting mass centralized markets for 20-30% reduction in installed system cost.

-- Total of 15-20 states using industry voluntary rating and certification procedures.

-- National sales of 25,000 solar domestic hot water systems (0.7% of 1993 total market).

-- First system manufactured using the integrated balance of systems concept reaches market.

2000 Performance Measures

-- Deploy solar heating technologies capable of producing solar water heating and solar air heating energy

I. **Mission Supporting Goals and Objectives:** SOLAR BUILDINGS APPLIANCES R&D (Cont'd)

savings at costs of 4 cents per kWh and 1 cents per kWh, respectively.

-- National sales of 40,000 solar domestic hot water systems (1% of 1993 total market).

II. **Funding Schedule:**

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Space Conditioning and Water Heating.....	$ 4,349	$ 1,942	$ 5,000	$ 3,058	+157
Total, Solar Buildings Appliances R&D	$ 4,349	$ 1,942	$ 5,000	$ 3,058	+157

III. **Performance Summary:** SOLAR BUILDINGS APPLIANCES R&D

FY 1995 Accomplishments:

- Space Conditioning and Water Heating ($4,349)

  National rating and certification program for solar thermal products gained additional acceptance, being required by two more state incentive programs and re-affirmed by HUD.

- Unglazed transpired collector for vent air pre-heat received national awards (R&D 100, Popular Science "Best of What's New"). Design tools were developed and made available to industry, which resulted in a 15% increase in system efficiency. Six new systems were installed in 1994 and ten more in 1995.

- A new structure for utility SDHW incentive programs was developed, involving a utility/ESCO partnership. This program structure addresses first cost and reliability concerns arising in the open, rebate-based program structure employed previously.

FY 1996 Accomplishments (to date and planned):

- Space Conditioning and Water Heating ($1,942)

  Completed transition of national certification program from development to application for 80% of the

III. **Performance Summary**: SOLAR BUILDINGS APPLIANCES R&D (Cont'd)

. solar domestic hot water system types. Established certification requirement for 3-4 additional states, utilities, and code municipalities.

- Validated economic viability of utility-energy service company (ESCO) model program structure for solar domestic hot water systems. Provided technical monitoring and evaluation support to consortium of 1-2 utility-ESCO solar initiatives and pending ESCO arrangements resulting in a 10-15% reduction in installed system cost and 20-25% increase in market penetration rate.

- Developed new concepts and potential applications for unglazed transpired collector solar systems focused on highly replicable standardized building designs for mass produced building manufacturers of light commercial/industrial/agricultural buildings providing a 2-4 year payback on installed system cost and 20-30% reduced energy consumption. Achieved a 50-100% increase in the total number of ventilation air pre-heat installations.

- Completed conceptual designs for a fully assembled/manufactured active solar domestic hot water (SDHW) balance-of-system and a passive SDHW system with 15-20-year service lives at sustained levels of performance with 15-30% reduction in life-cycle cost.

FY 1997 Planned Accomplishments:

- Space Conditioning and Water Heating ($5,000)

  Complete final technical hurdles for a National Rating and Certification Procedure for all solar domestic hot water system types and complete transfer of implementation process for solar systems to industry.

- Establish 2-4 utility-energy service company solar initiatives resulting in 40-60% increased market penetration rate and 25-40% reduction in installed system cost.

- Initiate industry cost-shared initiatives to develop the next generation of solar equipment and optimized manufacturing processes by the year 2000. Conduct prototype development and testing of most promising concepts offering an additional 30-50% increased cost effectiveness and 20-year service lives.

- Solicit industry concepts on the cost-shared development of photovoltaic building applications with 20-30% improved cost effectiveness through innovative architectural integration techniques.

- Complete feasibility study of combined photovoltaic/thermal hybrid solar collector with 200% increase in overall system performance over current photovoltaic systems with only a 15-20% increase in total system

III. **Performance Summary**: SOLAR BUILDINGS APPLIANCES R&D (Cont'd)

cost.

Explanation of Funding Changes FY 1996 to FY 1997

The increase of $ 3,058,000 in Space Conditioning and Water Heating (in Solar Buildings Appliances R&D) will restore funds needed to maintain critical core research and development activities which were cancelled, deferred, and extended as a result of the 62% budget reduction in FY 1996. Specifically this consists of the following:

-- Increase of $1,462K in Technology Development R&D to initiate cost-shared development of integrated balance of systems and improved manufacturing processes for existing solar technologies which are cost competitive with electicity in the near-term, and the cost-shared development of the next generation of solar equipment cost competitive with gas by the year 2000.

-- Increase of $1,135K in Technology Deployment activities will provide technical assistance to assure successful design and implementation of utility-energy service company solar domestic hot water initiatives. This will result in a 40-60% growth in market penetration and 30-50% reduction in installed system cost.

-- Decrease of $130K in Quality Assurance for continued transfer of voluntary certification procedures to industry for implementation. It provides for continued technical development of procedures to accomodated advanced systems being developed by industry.

-- Increase of $500K to re-establish Building Integrated Photovoltaic (BIPV) R&D activities which provide for the technical/architectural integration of photovoltaics in the building sector in collaboration with the photovoltaic industry and the Office of Utility Technologies R&D on photovoltaic panels and products. The building sector represents the most cost effective and growing market opportunity for photovoltaic technologies currently under development.

PHOTOVOLTAIC SYSTEMS R&D

I. **Mission Supporting Goals and Objectives**:

A. Program Description

The mission of the Photovoltaic Technology Program is to conduct the research and development (R&D) necessary to develop economically competitive sources of electricity for our nation, thereby ensuring a more secure energy future. R&D goals are to increase the conversion efficiency and performance of photovoltaic devices, reduce manufacturing costs of components and systems, and increase the reliability and lifetime expectancy of modules and installed systems.

Photovoltaic R&D activities are integral to advancing the science and technology base that will maintain steady progress toward long-term goals of improved performance and lower costs. The U.S. photovoltaic industry is currently experiencing annual growth rates exceeding 25% in international and domestic sales. This is the direct result of U.S. science and engineering leadership over the past 20 years. A strong R&D program is essential to maintain our nation's world leadership in this strategic energy industry, which produces high-technology jobs and product exports. Photovoltaic R&D is still considered by industry to be too high-risk and long-term to support on their own. Therefore, a key element of the PV program is to provide a continuing flow of improved technology to industry for its development of globally competitive products.

The FY 1997 budget presents a balanced effort in fundamental and applied research, materials and device development, process and manufacturing improvements, module reliability, and system testing and evaluation. A major portion of the budget will be used in competitive procurements to fund highly leveraged cost-shared projects with U.S. utilities and the emergent PV industry.

Fundamental research activities will continue on several photovoltaic semiconductor materials to resolve issues that limit current technology, and to develop new ideas for next generation (post 2000) technologies. Advanced materials and devices work will continue cost-shared research with industry to improve device efficiency and stability, particularly for large-area thin-film deposition systems. These research activities are core program efforts to develop the advanced technologies that are essential to maintaining U.S. competitiveness in the next 5 to 10 years. The manufacturing process technology effort will start the last phase of the Manufacturing Research and Development portion of the Photovoltaic Manufacturing Technology (PVMat) project cost-shared work with industry to reduce module manufacturing costs, improve module performance, and stimulate investment in new production lines. Assessments of PV industry manufacturing

I. Mission Supporting Goals and Objectives: PHOTOVOLTAIC SYSTEMS R&D (Cont'd)

status and R&D needs will be carried out in FY 1996 to determine follow-on activities. Module and system reliability research will continue to support reliability testing of modules and systems to improve operational lifetime in the field. In cooperation with the Utility PhotoVoltaic Group (UPVG), efforts will be continued to complete cost-shared utility projects designed to establish technical and economic validation in specific high-value applications. In addition, research and analysis relating to restructuring in the electric utility industry will be conducted on issues associated with integration of Photovoltaic systems into an increasingly competitive industry framework. Additional fundamental research on resource characteristics will identify cost-competitive options for systems integration.

B. Estimates of Benefits

At the proposed funding levels, the Photovoltaic Technology R&D Program is expected to yield the following quantifiable benefits:

	2000	2010	2020
Annual Primary Energy Displaced	0.01 Q	0.03 Q	0.89 Q
Annual Displaced Electricity Value ($0.07/kWh)	$93 M	$224 M	$2,737 M
Carbon Equivalent Emissions Reductions	0.29 MMT	0.65 MMT	7.67 MMT

The U.S. photovoltaic industry has been growing at an annual rate of 20-25% over the past five years and is now the leader in sales throughout the world. The strong and aggressive DOE R&D program has been instrumental in establishing the U.S. PV industry as the leader in a very competitive and rapidly growing global marketplace.

C. Performance Measures

Goals for 2000

-- Increase the conversion efficiency of commercial modules from the current 7% to 10% or better for thin films, and from the current 14% to 15% or better for crystalline silicon.

-- Reduce the manufacturing costs of commercial modules by 50% from current average costs of about $3.50/watt.

-- Attain 700 megawatts in U.S. PV industry cumulative sales compared to cumulative sales through 1995 of 216

I. **Mission Supporting Goals and Objectives:** PHOTOVOLTAIC SYSTEMS R&D (Cont'd)

megawatts.

1996 Performance Measures

-- Develop a 17.5% efficient prototype thin film solar cell.

-- Develop a 19% efficient prototype crystalline silicon large-area cell on a low-cost material.

-- Complete Photovoltaics Building Opportunities in the U.S. (PV-BONUS) program.

1997 Performance Measures

-- Complete the Phase I testing and evaluation of 8-11 UPVG utility PV systems totaling 5 megawatts of installed capacity.

-- Develop a low-cost, stable module encapsulant with potential for 25-year life.

-- Achieve greater than 9% efficient thin film commercial modules.

1998-1999 Performance Measures

-- Develop an 18% efficient prototype thin film solar cell. (1998)

-- Develop a 13% efficient prototype stable amorphous silicon solar cell. (1999)

-- PVMaT reduces manufacturing costs by 50% from 1994 baseline. (1998)

II. **Funding Schedule:**

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Fundamental Research	$ 8,986	$ 9,945	$ 11,000	$ 1,055	+ 11
Advanced Materials and Devices	23,300	23,866	28,000	4,134	+ 17
Collector Research and Systems Development	51,549	27,748	47,994	20,246	+ 73
Total, Photovoltaic Systems R&D	$ 83,835	$ 61,559	$ 86,994	$ 25,435	+ 41

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III. **Performance Summary**: PHOTOVOLTAIC SYSTEMS R&D

FY 1995 Accomplishments:

- Fundamental Research ($8,986)

  Several new efficiency records for polycrystalline thin film modules were established, including a 12.6% copper indium diselenide (CIS) sub module. A 1% increase in efficiency of a PV cell from 11% to 12% translates to an increase in electric power production of 9% or 90 kilowatts for every megawatt of installed capacity.

- A new world record efficiency was established for a thin-film polycrystalline photovoltaic cell. The Department's National Renewable Energy Laboratory produced a 17.1 % copper indium diselenide (CIS) cell, surpassing the old record of 16.4%, using a unique hybrid binary deposition method.

- Advanced Materials and Devices ($23,300)

  The first stabilized amorphous silicon (a-Si) module with greater than 10% efficiency was produced by industry, providing good evidence that continuing progress in a-Si multijunction technology will lead to successful commercialization.

- An aggressive thin-film cost-shared industry partnership program was initiated in FY 1995 to develop commercially-viable, thin-film material, cell and module technology for cadmium telluride, CIS, a-Si, and thin film polycrystalline silicon.

- The Department's National Renewable Energy Laboratory produced the first two-terminal, tandem-junction, monolithic, gallium arsenide (GaAs) solar cell with a verified efficiency of more than 30% under concentration. This was a major step from previous efficiencies of around 25 percent toward the program goal of 35 percent efficiencies for this type of solar cell.

- Collector Research and Systems Development ($51,549)

  The Photovoltaic Manufacturing Technology (PVMaT) Project contractors have reduced encapsulation costs by as much as 70%, reduced module material costs as much as 56%, increased yield and throughput of crystal growing production lines by 20%, and increased plant capacity for thick-film polycrystalline silicon cell production to 4.4 MW per year, a 1000% increase. Since its inception in 1991, we worked with industry to reduce production costs by 50 percent.

- U.S. photovoltaic power module sales grew 35% in 1995. Preliminary estimates show continued growth in

III. Performance Summary: PHOTOVOLTAIC SYSTEMS R&D (Cont'd)

1996. This quantity of module production translates to 35 MW for an estimated $300 million in 1995 industry sales.

- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Issued a solicitation which resulted in 13 utility cost-shared projects. The cost-share was 3:1 industry to federal funds. ($10,000)

FY 1996 Accomplishments (to date and planned):

- Fundamental Research ($9,945)

  Continue to assist university and industry researchers to characterize cell materials and devices, diagnose defects and develop solutions. Our world class laboratory facilities at NREL and Sandia will measure and characterize over 10,000 cell samples for industry over the coming year.

- Advanced Materials and Devices ($23,866)

  Complete first-year funding for thin-film partnership contracts resulting in 11% efficient stabilized amorphous silicon cell (1 cm2); a 9% efficient CdTe module; and a 13% efficient CIS sub module.

- Continue reliability testing of cells, modules and balance of system components. This effort supports industry's efforts to extend lifetime warranties on PV modules which stands at 15 years.

- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Complete design phase and begin construction of eight new Utility Photovoltaic Group (UPVG) projects. ($6,000)

- Collector Research and Systems Development ($27,748)

  PVMaT: Complete funding for 16 cost-shared contracts with industry.

- Complete Building Opportunities in the US for Photovoltaics (PV:BONUS) contracts, resulting in five new PV products that can be integrated into commercial and residential buildings, such as innovative PV roofing shingles.

- Continue to test the performance and reliability of balance of system components at the SE and SW Regional Experiment Stations.

III. Performance Summary: PHOTOVOLTAIC SYSTEMS R&D (Cont'd)

FY 1997 Planned Accomplishments:

- Fundamental Research ($11,000)

  Produce a prototype crystalline silicon module with conversion efficiency in excess of 16 percent to maintain steady progress toward mid-term goals of low-cost (less than $1/watt) silicon modules.

- Produce a prototype thin-film module conversion efficiency in excess of 12 percent to maintain steady progress toward long-term goals of low-cost (about $0.50/watt) thin film modules.

- Advanced Materials and Devices ($28,000)

  Develop a low-cost, stable module encapsulant with potential for 25-year life compared to today's 15-year life.

- Develop balance-of-systems components with potential for 15-year life and installation cost ($5 per watt) at no more than 50% of installed total system costs. Today some balance-of-system components have a lifetime as short as 5 years.

- Collector Research and System Development ($47,994)

  PV:BONUS: Complete field testing and assessment of PV: BONUS projects

- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Issue UPVG request for proposals for an additional 13 megawatts of installed capacity in small and large-scale utility projects as part of our PV-COMPACT program. ($18,000)

- Start funding last phase of PVMaT Manufacturing R&D contracts.

Explanation of Funding Changes FY 1996 to FY 1997

The increase of $ 1,055,000 in Fundamental Research is to restore fundamental research to prior year levels which were impacted as a result of general reductions and rescission actions in FY 1995. This funding will maintain the world class research capabilities at our nation's laboratories and provide for the exploration of new concepts that provide steady advancements into the post 2000 time frame.

III. **Performance Summary**: PHOTOVOLTAIC SYSTEMS R&D (Cont'd)

The increase of $ 4,134,000 in Advanced Materials and Devices will expand R&D partnerships in support of thin film research and engineering. Thin film technology shows significant promise for reducing energy costs from PV systems. The focus is to form partnerships with industry and the extensive expertise available in university science and engineering departments.

The increase of $ 20,246,000 in Collector Research and Systems Development restores funding to the planned level in the Photovoltaic Manufacturing Technology (PVMaT) program, and restores DOE's commitment under PV-COMPACT. PVMaT is cost-shared 1:1 industry to federal funds. PV-COMPACT is 4:1 industry cost-shared. The increment will also support the rapid development of next generation balance-of-system-technologies. The PVMaT program is a highly leveraged program that is strongly supported by industry and addresses technical issues related to manufacturing, fabrication and process engineering of large-area thin film modules. PV-COMPACT is a highly leveraged early deployment partnership with utilities that includes focused education and analysis activities.

SOLAR THERMAL R&D

I. Mission Supporting Goals and Objectives:

A. Program Description

Solar thermal technology works by concentrating large amounts of sunlight to achieve high temperatures, which are used to generate electricity for utility and off-grid applications or process heat for industrial use. Currently, there are three solar thermal electric technologies: power towers, dish/engines, and parabolic troughs. Solar industrial technologies include process heating, detoxification, and materials processes.

The mission of DOE's Solar Thermal Electric (STE) Program is to work with manufacturers, developers, and users of solar thermal electric technology to: (a) develop reliable and efficient solar thermal electric systems that will generate economically competitive power to improve our nations energy security through greater diversity of supply; (b) reduce the environmental impacts of energy production and (c) proactively support the development of these technologies to penetrate peaking and intermediate power generation markets with new energy applications, thus creating business opportunities in the U.S. and abroad and jobs for U.S. workers. The STE Program, in conjunction with the industry and user communities, has developed a leveraged cost-shared program to support the technology research and development necessary to achieve electric generation cost in a competitive range (less than 10 cents/kWh). These projects should allow industry to build commercially successful dish/Stirling, trough, and power tower plants as early as 1999.

The goal of the Solar Industrial Program was to facilitate the increased use of solar energy within the industrial sector. Specific objectives included developing solar technology that: (1) increased the fuel-flexibility in industry, (2) reduced industrial energy costs, (3) reduced or eliminated hazardous wastes resulting from industrial processes, and (4) introduced new solar-based manufacturing processes to enhance U.S. industrial competitiveness. To achieve these objectives, DOE supported cost-shared research and development projects aimed at making solar energy competitive with fossil fuels for the following applications: process heating, detoxification of hazardous chemicals, and certain materials processes. Although the cost of solar process heat has decreased from $40 per million BTUs to less than $8 per million BTUs over the last decade, it is still more costly than fossil fuels. Solar detoxification technology has had an even more remarkable decline in cost; falling by 75% in five years through an aggressive R&D program. The R&D that has driven these cost reductions will continue through FY 1996. Due to the need to reduce Federal spending and to higher priorities in other areas, funding for solar thermal processing is not being requested for FY 1997 and orderly closeout of program activities will take place. It is expected that industry will

I. **Mission Supporting Goals and Objectives**: SOLAR THERMAL R&D (Cont'd)

continue to work toward commercializing solar process heat and detoxification technologies, although at reduced levels of effort.

B. Estimates of Benefits

UTILITY SECTOR

At the proposed funding levels, the STE Program is expected to yield the following quantifiable benefits:

	2000	2010	2020
Annual Primary Energy Displaced	0.00 Q	0.07 Q	0.34 Q
Annual Displaced Electricity Value ($0.07/kWh)	$9 M	$472 M	$2,360 M
Carbon Equivalent Emission Reduction	0.02 MMT	1.00 MMT	2.00 MMT

Solar thermal technologies currently account for 354 MW of installed capacity in the U.S. With the availability of World Bank funding through its Solar Initiative, industry is projecting to add an additional 250 MW (100 MW trough, 100 MW power tower, and 100 MW dish/Stirling systems) in the U.S. and abroad by the year 2000.

INDUSTRY SECTOR

By the year 2010, solar process heat could displace 0.11 quad of the energy industry needs, creating 10,000 jobs. This could expand to 3 quads by 2035, which would reduce the amount of CO2 emissions by 0.375 billion tons per year. Solar energy can also be used to destroy many hazardous chemicals that contaminate industrial processes (e.g. solvents, dyes, fuels, lubricants, pesticides). This would help industry comply with Clean Air and Clean Water regulations by destroying the hazardous chemicals at the end of the process where they are produced.

UTILITY SECTOR

C. Performance Measures (highlights)

The following performance measures will be used by the Solar Thermal Program to track its commitment to help bring these technologies into the marketplace:

I. Mission Supporting Goals and Objectives: SOLAR THERMAL R&D (Cont'd)

FY 1996 Performance Measures

-- Initiate total system testing of the 10-MW Solar Two Power Tower in Southern California. The operation of the system will demonstrate a 3-hour molten-salt storage capability to increase the solar plant's availability.

-- Deploy six 7-kW dish/Stirling units at utility/university/industry sites across the U.S. to gain operating experience in representative environments and better position the industry partner to make commercialization investments.

-- Complete testing of the first generation 25-kW dish/Stirling units. Initiate Phase II (design validation) for both 25-kW dish/Stirling contractors.

FY 1997 Performance Measures

-- Complete the cost-shared portion of the 7-kW dish/Stirling program by supplying 12 commercial-ready units at user sites. Industry will proceed with the commercial development of these systems, focussing on the international marketplace as an initial point of entry.

-- Deploy five 25-kW systems at a grid-connected site in Southern California that will validate the design and performance of the systems.

1998-1999 Performance Measures

-- Complete the test and evaluation phase of the 10-MW Solar Two Power Tower in California; establish the technical and operational feasibility for future commercial power tower plants.

-- First 7-kW and 25-kW dish/engine systems are offered for commercial sales including the deployment of systems at a grid-connected site in the Mojave Desert.

2000 Performance Measures

-- Commercial sales of 1,000 units per year of the remote-scale (7-kW) dish/engine systems, resulting in the creation of 250 new jobs.

-- Commercial sales of 1,400 units per year of the two utility-scale (25-kW) dish/engine systems, leading to

I. **Mission Supporting Goals and Objectives**: SOLAR THERMAL R&D (Cont'd)

the creation of 350 new jobs.

-- Installation and operation of an additional 250 MW of commercial solar thermal electric systems (100 MW trough, 100 MW power tower, and 50 MW dish/Stirling systems) in the U.S. and abroad.

-- Reductions in the cost of solar thermal electric power from the current 17 cents/kWh (solar-only component of the trough systems in California) to under 10 cents/kWh.

INDUSTRY SECTOR

The following performance measures will be used by the Solar Industrial Program to track its commitment to partners attempting to introduce solar technology to the industrial sector.

FY 1996 Performance Measures

-- All program activities will be terminated with the least adverse impact to DOE's partners.

-- At least one company will be positioned to begin the commercialization of detoxification technology for industrial customers.

FY 1997 Performance Measure

-- Because there will be no activities after FY 1996, performance measures will solely rely on industry's success in commercializing technologies that were developed under partnership with the Solar Industrial Program.

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II. **Funding Schedule**:

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Solar Thermal Electric R&D					
Thermal Systems Research	$ 7,208	$ 6,768	$ 5,800	$ -968	- 14
Power Applications Research	16,323	12,478	17,950	5,472	+ 44
Subtotal, Solar Thermal Electric R&D	$ 23,531	$ 19,246	$ 23,750	$ 4,504	+ 23

II. **Funding Schedule**: SOLAR THERMAL R&D (Cont'd)

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Solar Industrial					
Solar Detoxification	$ 3,119	$ 2,777	$ 0	$ -2,777	-100
Solar Industrial Processes	3,666	2,247	0	-2,247	-100
Subtotal, Solar Industrial	$ 6,785	$ 5,024	$ 0	$ -5,024	-100
Total, Solar Thermal R&D	$ 30,316	$ 24,270	$ 23,750	$ -520	- 2

III. **Performance Summary**: SOLAR THERMAL R&D

FY 1995 Accomplishments:

* UTILITY SECTOR ($23,531)

  Thermal Systems Research ($7,208)

  -- Optical Materials - Polymer optical material constructions demonstrated excellent optical durability during accelerated laboratory exposure tests; outdoor testing at six sites was initiated. An industry advisory panel was formed to facilitate communication with solar, materials, and utility industries.

  -- Concentrators - Developed new system to improve optical performance of facets. Upgraded Solar One heliostats for operation under Solar Two. Refined the Solar Two heliostat canting and cleaning procedures. Upgraded Beam Characterization System (BCS) for enhanced heliostat and dish testing and alignment.

  -- Receivers - Fabricated and successfully tested a felt-wick heat-pipe receiver for a Stirling engine. Completed testing of a 2nd-generation hybrid pool boiler receiver for the 25-kW dish/Stirling system. Completed construction and on-sun testing of a 30-kW Brayton-cycle power conversion system for use on a 25-kW dish.

  -- Power Tower Support - Provided technology support for molten-salt systems at Solar Two 10-MW power tower site.

  Power Applications Research ($16,323)

III. **Performance Summary**: SOLAR THERMAL R&D (Cont'd)

-- Troughs - Completed O&M cost savings study for parabolic troughs. Analysis indicated a net present value of between $42M and $70M in O&M cost savings over the next 20 years of plant operation. DOE's cost-share, over 3 years, to achieve these savings was $2.1M.

-- Remote-Scale Dish/Stirling - Commenced Phase II (design validation) of the 7-kW dish/Stirling project. Successfully demonstrated a 7-kW solar receiver at full-scale using quartz lamps. Initiated remote control capability on a dish/engine system at a utility site. Tested heat-pipe receivers on-sun for over 2,000 hours.

-- Utility-Scale Dish/Stirling - Completed Phase I (concept validation) of Science Applications International Corporation's (SAIC) 25-kW dish/Stirling system. Phase II (design validation) on-sun testing began in June 1995. Cummins Power Generation, Inc. installed two concentrators in June 1995, and began on-sun testing of its 25-kW system in August 1995.

-- Solar Two Project - Engineering was 97% complete, construction was 67% complete, startup and checkout procedures were initiated, test and evaluation was commenced, and dedication is expected in June 1996. The new receiver and additional heliostats have been installed.

-- SolMat - Placed two heliostat contracts under the SolMat initiative in the spring of 1995. Issued 2nd SolMat solicitation for other key solar thermal components in June 1995.

-- Design Assistance & Program Support - Performed systems analyses and provided technical assistance to solar thermal technology users through testing, evaluation, technology development, education and outreach. Initiated a cooperative project with Sacramento Municipal Utility District (SMUD) to evaluate the feasibility of a 30-MW combined-cycle power tower ("Kokhala" Project) as a follow-on to Solar Two. Assisted state and federal institutions in selecting cost-effective renewable technologies, in providing solar resource data, and in refurbishment studies for existing solar trough systems.

- INDUSTRY SECTOR ($6,785)

Solar Detoxification ($3,119)

-- A CRADA was signed with International Technology Corp. to assist them in developing the photocatalytic process which uses solar energy or ultra violet energy from lamps to destroy hazardous chemicals in an air stream.

-- Development of a new catalyst for the solar detoxification process by SolarChem Environmental was

III. Performance Summary: SOLAR THERMAL R&D (Cont'd)

shown to be fifty times more efficient than other catalysts for applications in removing solvents and fuels from water. A field experiment at an oil refinery was initiated.

Solar Industrial Processes ($3,666)

-- Cooperative projects were established with the Environmental Protection Agency, California Department of Corrections, Jefferson County (Colorado) Detention Facility, Sacramento Municipal Utility District, and several other government and industry organizations to determine the effectiveness of solar process heat in providing a portion of their thermal energy needs.

-- R&D support continued to improve the reliability of a solar powered refrigeration system operating in a remote fishing village in Mexico. In addition operating data was obtained and analyzed from this system, which is providing the only source of refrigeration to the village.

-- The process developed by the National Renewable Energy Lab that produces silicon carbide at half the cost of other methods won an R&D 100 award as one the 100 most technologically significant products of 1995. The process is now being commercialized by Coors Ceramics Co. under a cooperative research and development agreement (CRADA).

FY 1996 Accomplishments (to date and planned):

- UTILITY SECTOR (19,246)

Thermal Systems Research ($6,768)

-- Solar Thermal R&D - Entered 2nd year of optical materials outdoor testing. Support efforts to improve optical performance and durability of facets. Initiate testing of stretched-membrane heliostats at Solar Two site. Complete on-sun testing of second-generation hybrid (solar/natural gas) reflux receivers for 25-kW dish/Stirling systems. Test high-temperature receiver for Brayton-cycle system. Resolve technical, construction, emission, and operation issues to incorporate hybrid receivers into dish/engines. Incorporate new high-temperature gas receiver on Brayton system.

Power Applications Research ($12,478)

-- Remote-Scale Dish/Stirling - Initiate testing of six commercial-ready 7-kW dish/Stirling units, which when successfully completed will allow Cummins to begin commercial production at their new dish manufacturing plant in Abilene, Texas.

III. **Performance Summary**: SOLAR THERMAL R&D (Cont'd)

-- Utility-Scale Dish/Stirling - Complete the testing and evaluation of the proof-of-concept demonstration phase of the 25-kW dish/Stirling units. Integrate 3rd generation Stirling engine with 2nd generation dish components for the Phase II systems to be deployed at utility sites.

-- Solar Two Project - Initiate full-scale testing and operation of the 10 MW Solar Two power tower pilot plant.

-- SolMat - Complete technology evaluation phase and begin manufacturing evaluation phase for two heliostat designs to validate the system and determine performance. Place two additional contracts, one for an advanced state-of-the-art molten-salt receiver, and the other for a composite material concentrator. The former will improve plant efficiency, and the latter will reduce the number of heliostat parts by 25%.

-- Design Assistance & Program Support - Continue to perform system analyses and provide technical assistance to users of power tower, dish/engine, and parabolic trough technologies through testing, evaluation, technology development, education and outreach. Perform case studies of viable projects as candidates for international markets with World Bank support. Assisted a trough developer in receiving World Bank support (up to $50 million) for a Mexican government parabolic trough project. Assist industry in the evaluation of a hybrid 100 MW power tower plant to support a coal plant in Rajahstan, India.

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- INDUSTRY SECTOR ($5,024)

Solar Detoxification ($2,777)

-- With ongoing technical assistance from DOE focused on efficiency improvements, the first commercial application of the photocatalytic oxidation process will be introduced by International Technology Corp. This application is likely to be the remediation of soil and groundwater contaminated from leaking fuel tanks.

-- Field tests at refinery and electronics facilities will be completed to show the effectiveness of the photocatalytic process in bringing industrial processes with environmental regulations. These experiments will assist International Technology and SolarChem in their efforts to commercialize the technology.

Solar Industrial Processes ($2,247)

III. Performance Summary: SOLAR THERMAL R&D (Cont'd)

-- Cooperative solar process heat projects begun in FY95 will be completed.

-- An industry-led team composed of solar manufacturers and their potential industrial and commercial customers will develop a strategy for making the technology suitable for targeted process heat markets.

-- Cooperative research activities searching for new industrial applications of solar energy will be terminated.

FY 1997 Planned Accomplishments:

* UTILITY SECTOR ($23,750)

Thermal Systems Research ($5,800)

-- Solar Thermal R&D - Complete testing of stretched-membrane heliostats at Solar Two site. Continue to refine canting procedures, cleaning techniques, and more clearly define O&M costs. Install second-generation hybrid (solar/natural gas) reflux receivers on 25-kW dish/Stirling systems for field testing. Enter 3rd year of optical materials outdoor testing. Continue Solar Two technical support and research related to hybrid receivers. Continue life-cycle testing of Stirling and Brayton dish/engine systems on-sun.

Power Applications Research ($17,950)

-- Utility-Scale Dish/Stirling - Deploy 5 second generation 25-kW dish/Stirling systems at a grid-connected site in Southern California. This will validate the design, performance, and availabilty of the systems. SAIC and Cummins plan to deploy 3 MW of 25-kW dish/Stirling systems at this site in the following year. This site, dubbed the "Mini Solar Enterprise Zone" will serve as a center for international representatives to assess the technology for commercial export.

-- SolMat - Design and build two sets of pre-commercial heliostats for testing and evaluation. Continue the technology evaluation of an advanced state-of-the-art receiver and a composite concentrator.

-- Design Assistance & Program Support - Perform systems analyses and provide technical assistance to users of power tower, dish/engine, and parabolic trough technologies. Provide technical support for a proposal to the World Bank for a 100 MW power tower in India. Provide evaluation and analysis for potential 50 MW hybrid trough plant in Mexico. Provide support for the California Energy Commission

III. **Performance Summary**: SOLAR THERMAL R&D (Cont'd)

Initiative for six renewable energy prison heating systems.

- INDUSTRY SECTOR ($0)

No activities are planned for FY 1997.

Explanation of Funding Changes FY 1996 to FY 1997

The decrease of $ 968,000 in Thermal Systems Research will reduce follow-on R&D for one concentrator system and reduce investment in developing durable polymer optical materials.

The increase of $ 5,472,000 in Power Applications Research includes:

Dish/Stirling Projects - The increase of $1,610,000 will provide cost-shared funds for the initial testing of pre-commercial systems at a grid-connected site in Southern California. This site will be used for the deployment of 3 MW of dish/Stirling systems in 1998. This deployment will provide the critical stepping stone for the commercial success of dish/engine technology.

SolMat - The increase of $2,051,000 will provide cost-shared funds to design and build two sets of pre-commercial heliostats for testing and evaluation, and continue the technology evaluation of an advanced state-of-the-art receiver and a composite concentrator.

Design Assistance & Program Support - The increase of $1,811,000 will provide 1) for the performance of systems analyses, 2) technical assistance to users of power tower, dish/engine, and parabolic trough technologies, and 3) additional support for the California Energy Commission Initiative for six renewable energy prison heating systems.

The decrease of $ 2,777,000 in Solar Detoxification will effectively terminate the program.

The decrease of $ 2,247,000 in Solar Industrial Processes will effectively terminate the program.

BIOFUELS

I. Mission Supporting Goals and Objectives:

The mission of the Biofuels R&D Program is to provide the technology base necessary for developing cost-competitive systems that can produce energy from biomass. Biomass feedstocks include agricultural residues and forestry wastes, such as rice straw/husks and sawdust, municipal solid waste, and trees and grasses grown specifically for their energy content. Biomass energy can provide products for three major world markets: electric power generation, transportation fuels, and chemical and textile production; and has the potential to provide approximately 33% of the total U.S. energy needs in these markets. Biomass energy systems can also provide substantial environmental benefits. Because bioenergy crops absorb carbon during growth, their use for transportation fuels or electricity production results in near zero net carbon release. When these fuels are used to displace traditional fossil fuels, significant emission reductions of the oxides of sulfur and nitrogen (SOx and NOx) can also be achieved. In addition, since biomass is domestically produced and is renewable, it offers significant opportunities for job creation, rural economic development, job creation, and alternative crop production opportunities for farmers (which can result in a further reduction of federal agricultural subsidy payments).

The goal of the Biofuels R&D Program is to develop low-cost biomass energy feedstock systems and cost effective, efficient conversion technologies for power generation and liquid fuel and chemical markets, and increase biofuels and biopower production capabilities. Associated objectives are to:

1. develop bioenergy crops and production methods to provide reliable, low-cost biomass feedstocks.

2. develop biomass conversion and processing technologies.

3. demonstrate biomass energy technologies.

The Biofuels R&D Program includes integrated activities from DOE's utility, industry, and transportation sectors.

I. Mission Supporting Goals and Objectives: BIOFUELS (Cont'd)

BIOMASS POWER R&D - UTILITIES

1.A. Program Description

The mission of the Utility Sector Biomass Power R&D Program is to assist in the development and demonstration of high-efficiency biomass power conversion technologies integrated with highly productive energy feedstocks. The goals of the program are to: (1) advance the state-of-the-technology to a point where integrated biomass power systems are cost-competitive with conventional power technologies, and (2) support industry efforts to commercialize these technologies by 2004 through cost-shared projects.

The Utility sector program focuses on research development, and proof-of-concept activities for thermochemical conversion technologies to produce cost-competitive electricity from biomass for utility applications. These efforts include low cost cofiring applications and retrofitting conventional power plants to employ renewable biomass resources. Additional efforts will focus on demonstrating next-generation high efficiency technologies (i.e., gasification/gas turbine, advanced direct combustion) at first-of-a-kind project sites. Currently, biomass electric generating capacity totals over 7,000 MW, consisting primarily of traditional thermal systems using biowaste materials or by-products. Specific program goals include research and development of biomass electric conversion technologies capable of producing electricity for 4-1/2 to 5 cents/kilowatt-hour by 2004 (the current cost is 7 cents/kilowatt-hour). Biomass electric conversion, in addition to being a low-cost renewable baseload electric generation strategy, also offers economic development and job creation benefits in rural areas through the production of dedicated feedstocks for these systems. It also provides for ecological diversification with environmental benefits to farm lands. The "Biomass Power for Rural Development" Program provides for cofiring, gasification and/or direct combustion customer-driven and cost-shared project opportunities with both agriculturally-based consortia and the pulp-and-paper industry. In addition, research and analysis relating to restructuring in the electric utility industry will be conducted on issues associated with integration of Biomass Power systems into an increasingly competitive industry framework. Additional fundamental research on resource characteristics will identify cost-competitive options for systems integration.

1.B. Estimate of Benefits

The currently installed biomass power generating capacity stands at approximately 7,000 MW. It is expected that by 2000, up to an additional 2,000 MW will be installed. By 2010, it is predicted that 8,000 MW of new capacity additions will be added, growing to a total of 30,000 MW of newly installed capacity by 2020. This growth will be experienced in several market segments, including biomass cofiring at existing coal-fired facilities, greatly increased energy export from the pulp and paper industry, and most dramatically by new

I. Mission Supporting Goals and Objectives: BIOFUELS (Cont'd)

integrated biomass power system deployments in rural areas aimed at capturing environmental and economic benefits to be afforded by these systems. This dramatic growth will be facilitated by the development and demonstration of high-efficiency, advanced technology biomass power systems which will be achieved in the first decade of the next century. The following table summarizes the program's benefits.

	2000	2010	2020
Annual Primary Energy Displaced	0.09 Q	0.43 Q	1.86 Q
Annual Displaced Electricity Value ($0.07/kWh)	$630 M	$3,039 M	$13,026 M
Carbon Equivalent Emissions Reductions	2.03 MMT	8.91 MMT	36.62 MMT

1.C. Performance Measures

Two advanced concept gasification systems are being validated for performance and availability in the late 1990s. In addition, at least 4 partnerships for pre-commercial plants will be initiated through the Program's "Biomass Power for Rural Development" initiative and will be on-line producing 175 MW(e) of power from dedicated feedstocks by 2001. These projects will establish the baseline for the future deployment of economically feasible, integrated biomass power projects.

Biomass Power Program sponsored research and development advances will be incorporated into biomass electric conversion technologies enabling electricity production using dedicated feedstocks for 4 1\2 to 5 cents/kilowatt-hour-by 2004. The following performance measures apply:

1996 Performance Measures

Complete long-duration testing of the direct gasifier at the Hawaii Biomass Gasifier Facility (a major technical milestone). This test concludes Phase 1 of the project.

Make awards and initiate at least four integrated biomass power projects through the "Biomass Power for Rural Development" solicitation. These new project partnerships will engage at least 15 new partners in the Biomass Power Program and leverage commitments for at least $100M of private-sector cost share over the life of the projects (FY 1996-2001).

1997 Performance Measures

Complete construction of the commercial-scale gasifier installation at the Vermont Project (a major project

I. **Mission Supporting Goals and Objectives**: BIOFUELS (Cont'd)

milestone).

Complete operational testing of the commercial-scale gasifier and conduct gas analysis of the Vermont Project installation (a major technical milestone). This concludes Phase II of the project.

Incorporate a high efficiency, 15 MW(e) gas turbine into the Vermont gasifier system.

Complete Phase I (detail design engineering and permitting) of the four "Biomass Power for Rural Development" projects (major project milestone).

To further expand the potential applications of high efficiency biomass gasification technologies, operation of a gasifier/fuel cell arrangement will be demonstrated.

1998-1999 Performance Measures

Complete total system operational testing of the gasifier/gas turbine configuration and conclude coupling of the new turbine generator with the gasifier for the Vermont Project. Completion of this phase will operationally demonstrate the feasibility of high efficiency, biomass gasification/gas turbine systems (a major accomplishment for the Program). Progression through Phase III will secure the major portion ($9M) of the private sector partner's total cost-share contribution ($13.5M) in this project.

Thermochemical Conversion

-- Through collaborative efforts with the Advanced Turbine System (ATS) Program, "ruggedized" gas turbine blades will be developed, which will enhance the operational durability of gas turbines in biomass gasification applications. These developments will greatly improve the efficiency and cost-competitiveness of integrated gasification/gas turbine systems by expanding the availability of these highly efficient components.

Systems Development

-- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Incorporate a gas turbine into the Vermont Gasifier System and complete full-scale gasification/gas turbine testing. This will conclude Phase III of the project and prove the technical viability of indirect gasification/gas turbine technology.

-- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Demonstrate cofiring of dedicated

I. Mission Supporting Goals and Objectives: BIOFUELS (Cont'd)

energy crops (willow) with coal in a commercial application through the collaborative DOE/USDA "Biomass Power for Rural Development" initiative.

-- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Demonstrate a fuel cell operating on switchgrass in a commercial application through the collaborative DOE/USDA "Biomass Power for Rural Development" initiative.

-- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Demonstrate a 50-75 MW (e) advanced combustion or gasification/gas turbine project fueled by dedicated energy crops through the "Biomass Power for Rural Development" initiative.

BIOFUELS - INDUSTRY

1.A. Program Description

The Industry Sector Biofuels activities consist of the Municipal Solid Waste Program (MSW) and the Advanced Turbine Systems (ATS)/Biomass for Cogeneration program.

Due to higher program priorities, the Municipal Solid Waste (MSW) program is not funded in FY 1997. However, in FY 1995 and FY 1996, the program addressed the following: It is estimated that we spend $30 billion per year to manage our trash, and over the last decade these costs have increased faster than inflation. The costs to communities are expected to increase rapidly in the foreseeable future because of the Clean Air Act Amendment and mandates/goals for high levels of recycling in many communities by the end of the century. These wastes offer a significant opportunity to conserve both non-renewable fossil energy and material resources, and to reduce the emissions of potent greenhouse gases and volatile organic compounds from landfills.

The goal of the ATS/Biomass for Cogeneration project is to allow biomass derived fuels to be burned in a cogeneration plant using a combustion turbine. Switching from clean natural gas to biomass fuels in combustion turbines is a significant challenge. The biomass derived fuels contain corrosive species which rapidly degrade gas turbine performance. Cogeneration is the efficient production of two forms of energy (electricity and steam) from the same fuel source using the exhaust from one system as the input for the other. Cogeneration system efficiencies can reach as high as 90%, a significant improvement over 35% efficiency when the production of steam and electricity are separated. To reach the goal requires development in two critical areas; gas clean-up and ruggedizing the turbine to improve corrosion and erosion resistance.

I. **Mission Supporting Goals and Objectives**: BIOFUELS (Cont'd)

1.B. Estimate of Benefits

The use of MSW technology could significantly reduce the amount of greenhouse gases (estimated at 4% of the total national emissions in carbon equivalents), displace up to 1 quad of fossil energy by 2020, and provide secondary raw materials now discarded. Beyond 2030, it offers the potential of eliminating landfill as a major MSW disposal method or a significant source of methane emissions and non-methane volatile organic compounds.

An ATS/Biomass for Cogeneration system will be more cost-effective, more efficient, and environmentally cleaner than a conventional biomass-fueled power generation system. Cogeneration system efficiencies can reach as high as 90%.

The following benefits are estimated from the Industry Biofuels activities of Biomass For Cogeneration:

	2000	2010	2020
Energy Savings (quad/year)	.02	.05	1
Cost Savings ($M/year)	75	325	700
Carbon Reduction (Million ton/year)	1.9	3.8	5.2

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1.C. Performance Measures

The goals of the Industrial Biomass program are to increase the use of municipal solid waste (MSW) as an economical and environmentally sound fuel or materials source; to allow biomass-derived fuels to be burned in a combustion turbine; and to develop advanced technologies for reducing costs in the textile industry.

The following performance measures will be used by the Industry sector's biomass programs:

FY 1996 Performance Measures

-- State and local governments will increase their use of ash to help them attain mandatory waste diversion rates.

-- MSW Program activities will be terminated with the least adverse impact to DOE's partners.

I. Mission Supporting Goals and Objectives: BIOFUELS (Cont'd)

-- Complete 2 studies on converting combustion turbines from natural gas to biomass-derived fuels.

FY 1997 Performance Measures

-- Because there will be no MSW funding after FY 1996, performance measures will rely on industry's success in commercializing technologies that were developed under partnership with the Municipal Solid Waste program.

-- Complete studies into gas clean-up requirements for combustion turbines.

-- Initiate design, testing and manufacture of combustion turbine components for biomass cogeneration applications.

FY 1998 (and Beyond) Performance Measure

-- Biomass for Cogeneration will demonstrate a combustion turbine that will be adaptable to biomass-derived fuels in 2000.

BIOFUELS - TRANSPORTATION

1.A. Program Description

The Biofuels-Transportation program is a key component in the Department's transportation strategy to reduce the nation's growing dependence on imported oil by providing the science and technology for a domestic, environmentally sustainable, alternative transportation fuel. For biofuels in the transportation sector, a comprehensive analytical strategic planning effort is used to identify the most promising biofuel options and technology gaps. Based on the analysis, the program focuses on the production of ethanol, an important alternative fuel option. Specific program goals include research and development of technology for producing ethanol for less than $1.00/gallon by 2000 from low-cost waste feedstocks and for $.67 per gallon by 2010 from bioenergy crops. The current estimated production cost is $1.22 per gallon.

The program focuses on research, development, and demonstration of feedstock production systems to develop bioenergy crops and biochemical conversion systems for the production of ethanol. The objective of the feedstock production activity is to develop highly productive woody and herbaceous energy crops for U.S. regions capable of supporting large-scale production systems, with regional crop development centers coordinating the research. Biochemical conversion objectives are to integrate technologies currently

I. **Mission Supporting Goals and Objectives**: BIOFUELS (Cont'd)

developed at the laboratory- and bench-scales for waste feedstocks into complete processes in the existing DOE/NREL 1-ton per day process development unit, providing reliable engineering, performance, and cost data for designs of larger scale demonstration and commercial facilities. Research will be continued to develop high-efficient, low-cost conversion technologies, such as genetic engineering methods to increase enzyme reactivity, reduce reaction times, and/or improve process efficiencies for converting bioenergy crops.

The Regional Biomass Energy Program transfers current and reliable information to potential biofuel energy users. Emphasis is placed on information and technologies best suited to near-term use, and includes economic and technical information as well as regulatory, environmental, and market considerations. Regional activities are coordinated with existing organizations, including Federal and State agencies, universities, private industry, associations, and other groups involved in furthering the use of biomass-to-energy applications. Each Region issues competitive solicitations to perform applied research and engage in cost-shared projects to demonstrate applications of biomass technologies; reduce or eliminate market barriers; understand economic and environmental costs, benefits and risks; and accelerate market acceptance of biomass technologies.

1.B. Estimate of Benefits

	2000	2010	2020
Primary Energy Displaced (Quads)	0.03	0.87	1.27
Primary Oil Displaced (MBPD)	0.01	0.41	0.60
Energy Cost Savings($B)	0.0	0.08	1.05
Carbon Reductions (MMTons)	0.57	15.7	18.8

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1.C. Performance Measures

The transportation biofuels program has established two principal goals together with the performance measures listed subsequently. By 2000, in collaboration with industry partners, produce ethanol from low-cost cellulosic waste materials, at a cost of $0.90 per gallon, using biochemical conversion technology, to displace 0.01 mbpd of oil.

By 2010, produce ethanol at a cost of $0.67 per gallon, from bioenergy crops, and reduce petroleum use by .41 mbpd and greenhouse gases by 15.7 million metric tons of carbon. The cost trend is shown in the following table:

I. Mission Supporting Goals and Objectives: BIOFUELS (Cont'd)

Cost Parameters
Biofuels-Transportation

	1985	1996(now)	2000	2010
Ethanol cost $/gallon*	3.80	1.22	0.90	0.67

* Based on feedstock costs of $2/MMBTU ($34/ton hybrid poplar, $26/ton switchgrass).

FY 1995 Performance Measures

-- Industry planted 50,000 acres of hybrid poplar clones developed for the Pacific Northwest by the program.

-- Completed operational shakedown of the one ton per day biomass to ethanol process development unit.

-- Received R&D 100 Award for development of organism capable of converting two major sugar components of cellulosic feedstock.

FY 1996 Performance Measures

-- Complete pilot-scale tests with Amoco Corporation to provide reliable scale-up operational and cost data for demonstration and small commercial ethanol facilities.

-- Complete feasibility study/business plan for rice straw project, in partnership with the City of Gridley, California, and its industrial team.

FY 1997 Performance Measures

-- Cost share research project with major paper company to develop information that will assist in the identification of soil types and their locations for hybrid poplar crops in the South.

-- Define best locations for supplying switchgrass feedstocks at a low cost at five different demand levels and the number of facilities that could be supported in six Midwest/Lake States.

-- Complete engineering design and initial construction of engineering demonstration unit or small-scale commercial biomass to ethanol unit with cost-sharing industry partner to be integrated into an existing

I. **Mission Supporting Goals and Objectives:** BIOFUELS (Cont'd)

facility.

FY 1998 - 1999 Performance Measures

-- Identify and begin optimization of biomass pretreatment methods capable of making mixed feedstocks, such as wastes and switchgrass, more amenable to biochemical conversion to ethanol.

-- Demonstrate full process of ethanol production from sawdust or other feedstock of industry interest at the pilot-plant scale.

-- Make available two new fully tested clones of hybrid poplar, specifically adapted for the Midwest/North Central U.S., for demonstration/commercialization by the private sector.

-- Establish ten switchgrass variety test sites for a total of thirty sites in the Southeast U.S., and five new variety tests in the Midwest/Lake States.

II. **Funding Schedule:**

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Biomass Power R&D - Utilities					
Thermochemical Conversion	$ 2,296	$ 2,125	$ 2,790	$ 665	+ 31
Systems Development	11,901	18,437	32,560	14,123	+ 77
Subtotal, Biomass Power R&D - Utilities	$ 14,197	$ 20,562	$ 35,350	$ 14,788	+ 72
Biofuels - Industry					
Municipal Solid Waste	$ 1,501	$ 1,760	$ 0	$ -1,760	-100
Biomass for Cogeneration	0	1,153	5,000	3,847	+334
Subtotal, Biofuels - Industry	$ 1,501	$ 2,913	$ 5,000	$ 2,087	+ 72
Biofuels - Transportation					
Feedstock Development	$ 4,950	$ 5,000	$ 6,050	$ 1,050	+ 21
Biochemical Conversion	22,435	19,610	32,490	12,880	+ 66
Thermochemical Conversion	4,515	1,775	0	-1,775	-100
Regional Biomass Energy Program	4,742	3,811	2,000	-1,811	- 48
Subtotal, Biofuels - Transportation	$ 36,642	$ 30,196	$ 40,540	$ 10,344	+ 34
Total, Biofuels	$ 52,340	$ 53,671	$ 80,890	$ 27,219	+ 51

III. **Performance Summary**: BIOFUELS

FY 1995 Accomplishments:

- BIOMASS POWER R&D - UTILITIES ($14,197)

  Thermochemical Conversion ($2,296)

  -- Successfully tested bagasse and other feedstocks in hot-gas cleanup systems developed by Westinghouse on 10 ton/day gasifier in Hawaii. Eliminated the need for tar-cracking of the gas stream.

  -- Completed characterizations of gases from two gasifiers fueled with bagasse, switchgrass and wood feedstocks. Operated a small turbine and fuel cell with these gases (the world's first operational demonstrations of these components fired by biomass gases).

  -- Decreased alkali metal content in biocrude oil by two orders of magnitude to ensure compatibility with diesel engines.

  -- Installed a modified, small-scale hot-gas cleanup system on the Hawaii biomass gasifier.

  Systems Development ($11,901)

  -- CLIMATE CHANGE ACTION PLAN: Partnership for Technology Introduction: Completed construction of the direct gasifier at Hawaii ($2,454)

  -- CLIMATE CHANGE ACTION PLAN: Partnership for Technology Introduction: Completed the design and initiated construction of the indirect gasification/gas turbine development project in Vermont. ($5,677)

  -- Completed 10 feasibility studies investigating the costs associated with deploying integrated biomass energy projects.

  -- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Issued collaborative DOE/USDA "Biomass Power for Rural Development" solicitation. Responses representing organizations from 25 states were received, proposing the deployment of up to 1000 MW of biomass power projects, utilizing up to 250,000 acres of land to produce dedicated energy feedstocks. ($685)

  -- Successfully demonstrated a 1 MW(e) direct-fired gas turbine plant which operates on sawdust.

  -- Completed geographic information system resource studies for 11 states to aid in identifying

III. **Performance Summary**: BIOFUELS (Cont'd)

locations of cost-competitive biomass resources in additional regions of the country.

-- Continued ongoing biomass systems analysis and design assistance/outreach efforts to assist existing biomass-fueled boiler operators.

- BIOFUELS - INDUSTRY ($1,501)

Municipal Solid Waste ($1,501)

-- Started design of commercially sized (10,000 gallon) high solids anaerobic digester for testing the combined disposal of biodegradable fraction of municipal solid waste with tuna sludge.

ATS/Biomass for Cogeneration ($0)

-- No Activities.

- BIOFUELS - TRANSPORTATION ($36,642)

Feedstock Development ($4,950)

-- Terrestrial Corps: Hybrid poplar clones, developed as a model tree energy crop by contractors of DOE, have been commercially planted on 50,000 acres in the Pacific Northwest. Activities continued to replicate this successful integrated feedstock development program in the Midwest and Southeast with poplars and in the Northeast with hybrid willows. A new breeding project was initiated in the Southeast with hybrid poplars. Switchgrass, the model herbaceous crop, is being developed in the Southeast, Lake States, Appalachia, and Plains States. These perennial tree and grass crops have significant advantages from an environmental perspective when compared to most annual crops cultivated under conventional agricultural systems. These feedstock crops can be used to produce fuels, electricity, chemicals, and fiber. The development of these feedstock technologies is critical to the development of a large-scale biomass industry.

-- Aquatic Crops: A patent was awarded for the introduction of multiple copies of the acetyl-CoA carboxylase (ACCase) gene into two different microalgae. ACCase is the key gene for the production of lipids from microalgae for biodiesel production. A multifunctional gene was isolated and cloned which may provide another avenue for metabolic enhancement of microalgae lipid production. Increased lipid production coupled with high biomass production rates is essential to the cost-effective production of biodiesel form microalgae.

III. **Performance Summary**: BIOFUELS (Cont'd)

Biochemical Conversion ($22,435)

-- The co-fermenting bacterium Zymomonas mobilis was improved by genetically engineering the genes needed to enable the organism to ferment xylose, glucose and arabinose, the third most abundant sugar found in lignocellulosic feedstocks, increasing the yield of ethanol and reducing the time required for reaction, thus reducing the associated costs. The development of the co-fermenting organism has resulted in the prestigious R&D 100 award from R&D magazine, for being one of the top 100 inventions in 1995. The bacterium Streptomyces lividians was successfully genetically engineered to produce two of the three required cellulase enzymes needed to break down cellulose. When supplemented with a third enzyme, a workable "engineered" artificial cellulase system could increase yields and reaction rates, and reduce capital costs for the production of ethanol. Seven cost-shared research and development projects were supported under the Consortium for Plant Biotechnology Research. These projects were conducted at six universities in Wisconsin, Illinois, Indiana, Michigan, Connecticut and Nebraska, resulting in a 50 percent industrial cost share of longer-term research for the production of energy from biomass. Operational shakedown of the one-ton/day process development unit (PDU) was completed and feedstock testing with a CRADA partner was initiated. Criteria for evaluating cost-shared ethanol plant siting studies were developed.

Thermochemical Conversion ($4,515)

-- The thermochemical process development unit was designed and constructed to provide for integrated biofuels testing. The BioSyngas Combination Synthesis Unit (BSCU) was designed and constructed. The BSCU will provide the capability to test a large number of catalysts using process syngas. A preliminary carbon dioxide and energy balance for soy and microalgae biodiesel was completed.

Regional Biomass Energy Program ($4,742)

-- Assistance was provided in developing State and local government and industry capabilities to produce and use biomass resources. Efforts to assess bio-resource availability were supported. A biogas recovery system capable of generating 26 kw or 80 percent of the electrical power needs of the adjacent farm was designed and installed. The cost-shared system saves the farm an estimated $10,000 annually in energy bills.

III. **Performance Summary**: BIOFUELS (Cont'd)

FY 1996 Accomplishments (to date and planned):

- BIOMASS POWER R&D - UTILITIES ($20,562)

  Thermochemical Conversion ($2,125)

  -- Complete gas characterizations for indirect gasifiers.

  -- Initiate fuel cell collaborative development program using biogas products from an existing gasifier.

  -- Implement and test improved hot-gas filtration system to ensure compatibility with high temperature turbines and/or diesel engines.

  Systems Development ($18,437)

  -- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Successfully demonstrate operation of the Hawaii Gasifier, and complete long duration testing with the hot-gas cleanup system. ($3,685)

  -- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Continue construction of the indirect gasifier installation at Vermont. ($7,983)

  -- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Initiate 4 Integrated Biomass Power Projects through the collaborative DOE/USDA "Biomass Power for Rural Development" solicitation. Completed detailed engineering design and permitting for these projects. One cofiring project has commenced facility modifications/construction at an existing coal-fired plant to facilitate biomass processing/handling/combustion. ($5,332)

  -- Continue direct-fired gas turbine development, geographical information survey data-base development, and biomass systems analysis, design assistance and outreach efforts. ($1,437)

- BIOFUELS - INDUSTRY ($2,913)

  Municipal Solid Waste ($1,760)

  -- Completed construction of the high solids anaerobic digester in California. Operation and evaluation of the digester is begun. Successful demonstration will lead to the commercialization of the high solids

III. Performance Summary: BIOFUELS (Cont'd)

technology, producing a clean burning fuel gas for electricity production.

-- Compile data and develop guidance document on the beneficial use of combustion ash. This will provide a technical basis for the increased use of the ash and result in reducing costs associated with recovery of energy from waste and other materials (i.e. paper, plastic, and wood) and assist state and local governments in meeting mandatory waste diversion rates by diverting the materials from landfills.

-- All other tasks will be terminated by the end of the year.

ATS/Biomass for Cogeneration (New Start) ($1,153)

-- Completed 2 studies on converting combustion turbines from natural gas to biomass.

-- Initiated development of thermal barrier coatings and improved airfoil castings that will have increased corrosion resistance, cost, life and ease of fabrication.

- BIOFUELS - TRANSPORATION ($30,196)

Feedstock Development ($5,000)

-- Terrestrial Crops: Research will continue to develop economically viable model energy crops at integrated biomass feedstock crop development centers in the Pacific Northwest (poplars), Southeast (switchgrass), and Midwest/Plains States (switchgrass and poplars). Increased support for hybrid willow in the Northeast should lead to viability studies. A mechanization steering committee will promote collaborative research and development to lower harvesting/handling costs, a major obstacle to widespread use of short rotation systems for energy applications.

-- Aquatic Crops: Conduct activities for the orderly termination of this research area.

Biochemical Conversion ($19,610)

-- A multi-year program plan for the Ethanol Project is being developed, that will be peer reviewed and integrated with feedstock development activities. Research and development of Zymomonas mobilis at integrated bench scale will be completed, leading to testing for optimal conditions for using the co-fermenting organism on several relevant feedstocks. Research and development of the newly-developed arabinose-fermenting organism at the integrated bench scale will be initiated. Genetic engineering of Streptomyces lividans to produce the third cellulase enzyme, will be competed, creating the improved

III. **Performance Summary**: BIOFUELS (Cont'd)

artificial cellulase system and optimization will begin on relevant feedstocks. The process development unit (PDU) will be operated continuously in a fully integrated process mode (feedstock to ethanol). The PDU will be operated to evaluate handling, pretreatment, fermentation, and process efficiency for selected feedstocks, including those having environmental implications, such as rice straw which poses a disposal problem in California and other rice-growing areas. A feasibility study/business plan will be conducted in partnership with the City of Gridley, California, and its industrial team. Cost-shared, long-term research and development projects will continue to be supported under the Consortium for Plant Biotechnology Research with a 50:50 cost-shared requirement.

Thermochemical Conversion (1,775)

-- The thermochemical process development unit (TPDU) will be commissioned and operated at steady state to produce methanol. The BioSyngas Combination Synthesis Unit will be integrated and operated with the TPDU. Necessary activities will be conducted for the orderly close-out of work to produce transportation fuels, using thermochemical conversion processes. A soy biodiesel fuel cycle analysis, in collaboration with USDA, EPA, and other stakeholders, will be completed.

Regional Biomass Energy Program ($3,811)

-- Work will continue with State and local governments and industry to develop capability to produce and use biomass resources.

FY 1997 Planned Accomplishments:

- BIOMASS POWER R&D - UTILITIES ($35,350)

Thermochemical Conversion ($2,790)

-- Complete technology development of hot-gas filtration system, with demonstration on the Hawaii Gasifier.

-- Operate a gasifier with a fuel cell.

Systems Development ($32,560)

-- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Incorporate the full-scale Hot-Gas Cleanup unit into the Hawaii Gasifier Facility, and complete system operational testing. These

III. Performance Summary: BIOFUELS (Cont'd)

demonstrations of gasifiers and gas cleanup components will establish the commercial availability of advanced American biomass power technologies. ($2,923)

-- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Complete construction and operationally demonstrate the commercial-scale indirect gasifier at the Vermont Gasification Project. ($5,846)

-- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Initiate facility construction at the four integrated biomass power projects (part of the collaborative DOE/USDA "Biomass Power for Rural Development" program). One of the integrated cofiring projects will complete facility modifications, and conduct test burns, in anticipation of full-scale operations this fiscal year. Award two to three additional advanced technology biomass power projects through the "Biomass Power for Rural Development" program, to include additional advanced gasification/direct combustion systems. This provides for a broad base of advanced American technologies, which will help assure near-term market success and enhance industry's ability to compete in the world market. Launch a cooperative effort with USDA aimed at deploying an integrated flood plain management/energy crop development strategy. Initiate a cooperative effort with EPA aimed at better utilizing existing solid waste products to enhance energy crop yields through integrated composting strategies. ($21,462)

- BIOFUELS - INDUSTRY ($5,000)

Municipal Solid Waste ($0)

-- Evaluation of the digester will be completed using prior year funding. Completion of this activity will terminate the MSW program.

ATS/Biomass for Cogeneration ($5,000)

-- Initiate studies into the development of gas clean-up systems.

-- Continue development of thermal barrier coatings and improved combustion turbine airfoil castings that will have increased corrosion resistance, cost, life and ease of fabrication.

-- Commence design, manufacture, and testing of components for a combustion turbine that will be adaptable to biomass-derived fuels in 2000.

- BIOFUELS - TRANSPORTATION ($40,540)

III. Performance Summary: BIOFUELS (Cont'd)

Feedstock Development ($6,050)

-- Terrestrial Crops: Switchgrass scale-up test plantings will be established in the North Central region and Southeast to provide reliable scale data and information on yield, production, cost, and other parameters. Sites in six Midwest States with high potential for short rotation woody crops will be identified, based on the Midwest/Southeast Geographical Information Systems (GIS) study. Genetic markers will be identified that can be used to select hybrid poplar seedlings that are less susceptible to major poplar disease, reducing the risk of mortality and increasing technical/economic viability.

Biochemical Conversion ($32,490)

-- The co-fermenting organism, Zymomonas, will be tested in the PDU integrated process on biomass wastes and residues, and the newly developed genetically engineered organism capable of fermenting all available sugars will be tested at the integrated bench scale. The PDU will be operated to develop data and research process efficiencies using relevant feedstocks with significant potential for ethanol production. The three cellulase enzymes will be expressed in a single organism and an improved Acidothermus cellulase mutant enzyme will be developed by protein engineering and characterized. In the laboratory, the development of organisms capable of combining the two enzymatic process steps (cellulose conversion and fermentation) into one step will continue. The conceptual design for an engineering demonstration unit will be nearing completion, using agricultural waste, such as rice straw and corn fiber, to produce ethanol. Fifty/fifty cost-shared research and development projects will continue under the Consortium for Plant Biotechnology Research.

A first-of-a-kind demonstration of cellulosic biomass technology is acutely needed. This can be accomplished through a project that brings engineering and investment partners to this commercialization project, and validates the use of agricultural wastes to produce ethanol. This initiative will demonstrate the benefits of this technology to the investment community, while meeting environmental and security objectives.

Industrial partnerships will also be aggressively pursued to mass produce enzymes. The production of low-cost enzymes will be accomplished by developing advanced cellulase systems that result in higher productivity or improved manufacturing processes of new and/or more active enzymes. Low-cost cellulases are critical to the continued growth of the cellulosic biomass to ethanol industry beyond waste feedstocks.

Thermochemical Conversion ($0)

III. Performance Summary: BIOFUELS (Cont'd)

-- No Activities.

Regional Biomass Energy Program ($2,000)

-- The national regional program structure, including State representation where feasible, will be maintained at a reduced level. Highest priority activities will be pursued in such areas as liquid fuels development, co-firing of waste wood to produce electricity, and methane production from wood and agricultural waste streams.

Explanation of Funding Changes FY 1996 to FY 1997

The increase of $ 665,000 in Thermochemical Conversion (Utilities) will allow the program's scope to include collaborative efforts with the Advanced Turbine System (ATS) Program, with a principal mission of developing "ruggedized" gas turbine blades for biomass systems.

The increase of $ 14,123,000 in Systems Development (Utilities) will allow four projects to be selected through the collaborative DOE/USDA "Biomass Power for Rural Development" initiative to enter into the construction phase. Additionally, the number of industry cost-shared projects is expected to include an additional two to three projects. The inclusion of these additional projects will leverage more than $100,000,000 of private sector capital.

The decrease of $ 1,760,000 in Municipal Solid Waste (Industry) effectively terminates the program in FY 1997 due to higher program priorities.

The increase of $ 3,847,000 in Biomass for Cogeneration (Industry) supports the design, manufacture, and testing of combustion turbine components that will allow for conversion from natural gas to biomass gaseous fuels in cogeneration applications.

The increase of $ 1,050,000 in Feedstock Development (Transportation) will be used to support short rotation woody crops research in the Northcentral, Northeast, South, and Pacific Northwest. The genetics development and scale-up of an herbaceous bioenergy crop, switchgrass, will also be supported.

The increase of $ 12,880,000 in Biochemical Conversion (Transportation) will be used to bring together engineering and investment partners to cost share a first-of-a-kind demonstration of cellulosic biomass-to-ethanol technology at one more sites (DOE total available: $9,880,000). The estimated cost for these demonstrations range from $30 million to $50 million depending on the size and site selected.

III. Performance Summary: BIOFUELS (Cont'd)

DOE's share will not exceed 20 percent. The increase will also promote one or more partnerships with biotechnology and/or enzyme production firms to develop and mass produce low-cost biocatalysts (DOE total available: $3,000,000).

The decrease of $ 1,775,000 in Thermochemical Conversion (Transportation) will eliminate thermochemical conversion of biomass to produce a variety of versatile liquid fuel products through gasification/fuel synthesis and fast pyrolysis/catalytic cracking.

The decrease of $ 1,811,000 in Regional Biomass Energy Program (Transportation) will eliminate the annual solicitation for proposals for the five Regions to demonstrate biomass technologies that are matched by State funds.

WIND ENERGY R&D

I. Mission Supporting Goals and Objectives:

A. Program Description

The mission of the Wind Energy R&D Program is to establish wind energy as a regionally diversified, cost-effective power generation technology, through a coordinated research effort with industry and utilities that will minimize technical and institutional risks for U.S. companies competing in domestic and international markets.

Wind is an attractive energy source for several reasons: 1) wind generated electricity has the potential for serving as an inexpensive energy source for consumers and industries; 2) wind generated electricity produces no polluting emissions or other greenhouse gases; and 3) the international market for wind energy technologies is large and growing rapidly - buyers have already signed $300 million in purchase orders for new, state-of-the-art-wind turbine prototypes developed jointly by DOE and U.S. industry in 1994-95. By 2000, sales of wind energy technologies in the world market are estimated to reach $2-3 billion each year. While the U.S. wind industry is beginning to establish a foothold in this market, European and Japanese manufacturers continue to aggressively develop advanced technology and are expected to be increasingly competitive.

The Wind Energy R&D program conducts its research and development efforts to help U.S. industry gain a technological edge. The program focuses on Applied Research, Turbine Research, Cooperative Research and Testing, and Technology Deployment. The Applied Research program addresses fundamental engineering and technology issues with a broad range of applications and is carried out at several national laboratories and numerous universities. The Turbine Research program is a coordinated effort with industry and utilities which performs 50/50 cost shared research to develop the next-generation of wind turbines. The Cooperative Research and Testing program conducts R&D and prototype testing at the National Wind Technology Center in Colorado (opened in October 1994) which this year will be opening a world class user facility that will allow U.S. industries to expand testing of new wind energy technologies. The Technology Deployment program helps introduce utilities and other wind energy users to advanced wind turbine technologies and alternative approaches to wind energy deployment in the U.S. All four program elements work closely with the National Wind Coordinating Committee, a public/private partnership of producers, utilities, regulators, environmentalists and trade organizations organized in 1994.

I. Mission Supporting Goals and Objectives: WIND ENERGY R&D (Cont'd)

The Wind Energy R&D program has been extraordinarily successful in bringing down the cost of wind-generated electricity from 35 cents per KWh in 1980, to 7 cents per KWh in 1989, and 4 cents per KWh (in 15 mph winds) today. At current costs, wind energy is already competitive with conventional energy sources in selected markets on a life-cycle basis. Ultimately, wind energy will have to compete with gas- and coal-fired plants, which dominate the generation mix in the Midwestern U.S. where the majority of the country's good wind resource is located. To allow expansion of this large resource base, and to allow wind energy to be competitive in an era of utility restructuring that emphasizes low initial cost and independent power projects, significant improvements to the technology are still needed to reach the Program's goal of 2.5 cents per kWh in 15 mph winds by 2000. In addition, research and analysis relating to restructuring in the electric utility industry will be conducted on issues associated with integration of wind systems into an increasingly competitive industry framework. Additional fundamental research on resource characteristics will identify cost-competitive option for systems integration.

As wind technologies move closer to full commercialization, the Wind Energy R&D program intends to increase the private sector's share of R&D and demonstration project costs. For example, Federal support for Turbine Research is expected to decrease after FY 2000 as wind energy technologies become cost competitive with traditional power sources and as utilities and industry contribute an increasing percentage of funding for activities at the National Wind Technology Center.

B. Estimates of Benefits

At the proposed funding levels, the Wind Energy R&D Program is expected to yield the following quantifiable benefits:

	2000	2010	2020
Annual Primary Energy Displaced	0.05 Q	0.28 Q	1.45 Q
Annual Displaced Electricity Value ($0.07/kWh)	$376 M	$1,991 M	$10,142 M
Carbon Equivalent Emissions Reductions	1.19 MMT	5.84 MMT	28.51 MMT

Wind energy generating capacity installed in the U.S. currently totals over 1700 MW, is expected to grow to 3700 MW by 2000, and reach 10,000 MW by 2010. Wind energy emissions reduction impacts are enhanced by regional effects because much of the anticipated expansion will occur in the Midwest, where coal dominates the current generation mix.

C. Performance Measures (highlights):

I. **Mission Supporting Goals and Objectives**: WIND ENERGY R&D (Cont'd)

The following performance measures will be used by the Wind Energy R&D Program to track its commitment to meeting its year 2000 goal of producing electricity from wind energy for 2.5 cents per kWh in 15 mph winds:

1996 Performance Measures

-- Award 3 cost shared contracts (private sector cost share of $30 million for a total public/private investment of $60 million) to design and develop a new generation of wind turbines that will significantly reduce the cost of wind generated electricity;

-- Complete field tests of state-of-the-art turbines that will reduce technical and financial risks for utilities and industry; and

-- Complete the first blade fatigue test in the industrial user facility at National Wind Technology Center.

1997 Performance Measures

-- Initiate breakthrough research to establish design base for improved turbine technology for use in the 21st Century;

-- Conduct 10 industry tests, such as blade fatigue tests, at National Wind Technology Center's Industrial User Facility; and

-- Conduct full-scale design reviews on next-generation turbines (based on results of the 3 FY96 R&D contracts).

1998-99 Performance Measures

-- Test on two industry turbines an improved unsteady aerodynamic turbine model which allows variations in wind flow across and along a blade;

-- Complete prototype testing of next-generation wind turbines;

-- Complete breakthrough turbine technology study and present results to industry review group.

2000 Performance Measure

I. **Mission Supporting Goals and Objectives**: WIND ENERGY R&D (Cont'd)

-- Deploy fully tested advanced wind technologies capable of producing electricity at 2.5 cents per kWh in 15 mph winds.

Because wind moves intermittently in three dimensions and varies by terrain, the technological challenges of cost effectively capturing the wind resource are formidable. The Wind Energy R&D program focuses its R&D efforts on understanding how wind turbine blades may better capture the kinetic energy in winds which travel at varying speeds, and how the structures and components of wind turbines can be best designed for cost effectiveness and reliability. The discussion below briefly highlights accomplishments achieved or anticipated for each program element over the next several fiscal years:

II. **Funding Schedule**:

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Applied Research	$ 8,000	$ 9,900	$ 15,200	$ 5,300	+ 54
Turbine Research	14,810	15,320	19,700	4,380	+ 29
Cooperative Research and Testing	7,715	6,331	8,201	1,870	+ 30
Technology Development	14,506	0	6,549	6,549	>999
Total, Wind Energy R&D	$ 45,031	$ 31,551	$ 49,650	$ 18,099	+ 57

III. **Performance Summary**: WIND ENERGY R&D

FY 1995 Accomplishments:

- APPLIED RESEARCH ($8,000)

  -- Completed the installation and testing of advanced, high efficiency rotor blade assemblies that will address many technology questions currently limiting wind turbine operation and performance.

  -- Completed fatigue load experiments for a small 10 kW variable speed turbine. This project will help industry design structurally reliable wind turbines to last 20 years.

III. Performance Summary: WIND ENERGY R&D (Cont'd)

-- Provided laboratory data collection equipment for research testing at the NWTC.

- TURBINE RESEARCH ($14,810)

-- Began prototype field testing (30-50% industry cost share) of three new turbines developed to enhance turbine cost-effectiveness and reliability.

-- Began full-scale, multi-year research and development activities (50% industry cost share) to explore new concepts and apply cutting edge technology for next-generation, innovative, utility-grade wind turbines. These research activities will make wind turbines more cost-effective and more attractive as a power generation technology in many regions of the U.S.

- COOPERATIVE RESEARCH AND TESTING ($7,715)

-- Initiated construction and installation of a wind hybrid systems research and test facility at the NWTC in order to secure operational performance data under controlled conditions to validate design models and evaluate control systems.

-- Provided support for the development of domestic and international consensus standards to ensure U.S. manufactured turbines will not be denied access to overseas markets.

-- Provided technical assistance for village power and stand-alone applications to the U.S. wind industry for targeted international markets.

- TECHNOLOGY DEPLOYMENT ($14,506)

-- Completed construction of a wind turbine verification project in Southwest Texas, with the local utility and the Electric Power Research Institute, to allow the operational evaluation of new advanced wind turbines in a typical utility environment.

-- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Selected 3 projects for contract negotiations that will result in over 50MW of installed capacity in the U.S. (10,500)

FY 1996 Accomplishments (to date and planned):

- APPLIED RESEARCH ($9,900)

III. Performance Summary: WIND ENERGY R&D (Cont'd)

-- Provide industry with enhanced structural dynamics computational modeling capability for the design and analysis of variable speed and teetered rotors with aerodynamic controls. This will provide the first integrated systems analysis approach to advanced flexible structure turbine designs.

-- Complete variable speed turbine performance testing under actual field conditions. This project will provide the test data necessary to select optimal variable speed control strategies for maximizing wind energy capture.

-- Provide enhanced field and laboratory instrumentation for the NWTC in order to more effectively support DOE and industry research activities.

- TURBINE RESEARCH ($15,320)

-- Building on the FY95 effort, complete near-term turbine research and field testing, resulting in three highly competitive U.S. wind turbines that have already secured sales of $300 million in domestic and international markets.

-- Complete field tests for advanced turbine components and subsystems including a variable-speed generation system, direct-drive generator, fatigue-based control system, and a trailing-edge of the blade aerodynamic brake, for use in next-generation wind turbine research efforts.

-- Complete detailed designs and initiate fabrication of turbines under the multi-year, next-generation turbine research activities that focus on enhanced performance, efficiency, and reliability.

- COOPERATIVE RESEARCH AND TESTING ($6,331)

-- Complete installation of a wind hybrid systems research and test facility at the NWTC in order to conduct research and provide the U.S. wind industry with technical data for specialized wind energy applications in off-grid locations.

-- Complete construction of a new world class Industrial User Facility at the NWTC that will provide state-of-the-art research facilities for industry's use on a reimbursable basis.

-- In accordance with Congressional direction, provide engineering design and analysis assistance to support the Kotzebue, Alaska wind project.

- TECHNOLOGY DEPLOYMENT ($0)

III. Performance Summary: WIND ENERGY R&D (Cont'd)

-- With prior year funding, complete construction of a second wind turbine verification project with the Electric Power Research Institute and a Vermont utility. These verification projects evaluate prototype advanced wind turbines in diverse areas and conditions under typical utility operating environments.

-- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: With prior year funding, negotiate contracts for, and initiate construction of, selected wind farm projects that will result in over 50MW of installed capacity. ($0)

FY 1997 Planned Accomplishments:

- APPLIED RESEARCH ($15,200)

-- Complete installation and instrumentation upgrade of the new Advanced Research Turbine test facility located at the NWTC. This innovative test bed will permit complete test and performance testing of advanced prototype turbine components currently under research development.

-- Complete Golden Eagle Population study and related avian modeling which will provide industry with a comprehensive scientific approach to evaluating potential wind turbine and avian interactions.

-- Provide equipment necessary to construct a 1.5 megawatt dynamometer for turbine research testing activities at the NWTC.

- TURBINE RESEARCH ($19,700)

-- Complete fabrication and initiate proof-of-concept testing of prototype systems under the continuing multi-year next-generation turbine research program. Research activities will lead to multiple utility-grade, innovative wind turbines for the marketplace in 2000, that are a major advance over current technology and capable of producing electricity at 2.5 cents per kWh in 15 mph winds.

-- Complete fabrication and initiate field tests of newly manufactured blade prototypes under the Department's Blade Manufacturing Project (20-50% industry cost share). Research efforts will focus on more efficient and cost-effective ways to manufacture wind turbine blades.

- COOPERATIVE RESEARCH AND TESTING ($8,201)

-- Continue to provide the National Wind Technology Center with laboratory data collection equipment and

III. **Performance Summary**: WIND ENERGY R&D (Cont'd)

R&D support for prototype testing.

- TECHNOLOGY DEPLOYMENT ($6,549)

  -- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: - Select utility industry partners for the highly leveraged Turbine Verification Program to evaluate prototype advanced wind turbines in diverse areas of the country under typical utility operating environments. ($2,750)

  -- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: - Select partners for the Distributed Wind Cluster Deployment Program, under which landowners, farmers, and small utilities will cost share small, distributed wind projects as an alternative to large scale wind farms. ($3,799)

Explanation of Funding Changes FY 1996 to FY 1997

The increase of $ 5,300,000 in Applied Research will result in an increase of core research activities conducted at the National Wind Technology Center and competitively selected Universities and HBCUs, and will provide for a 1.5 megawatt dynamometer for research testing at the National Wind Technology Center.

The increase of $ 4,380,000 in Turbine Research will allow for the completion of three innovative utility-grade wind turbines capable of producing electricity at $2.5 cents per/kWh in 15 mph winds.

The increase of $ 1,870,000 in Cooperative Research and Testing will result in additional technology assistance to U.S. companies competing for global markets, and certification type testing at the National Wind Technology Center.

The increase of $ 6,549,000 in Technology Development will restore CCAP activities in the Turbine Verification Program, and support a refocussed Distributed Wind Cluster Deployment Program from large wind farms to small wind projects.

RENEWABLE ENERGY PRODUCTION INCENTIVE PROGRAM

I. Mission Supporting Goals and Objectives:

A. Program Description

The Renewable Energy Production Incentive (REPI) established by EPAct Section 1212 is a key program for assisting developers in gaining market entry and feedback on the operation and maintenance needs of grid connected renewable energy systems. For qualified renewable energy facilities owned by State entities or non-profit membership owned utilities, REPI provides a payment for energy produced by these facilities, thereby encouraging both their acquisition and dispatch. The utility ownership is an important feature of this program because utilities represent an important target market toward which the renewable research and development activities is directed.

B. Estimates of Benefits

At the proposed funding level, the REPI program is expected to yield the following benefits:

	2000	2005
Annual Primary Energy Displaced	0.007 Q	0.013 Q
Annual Displaced Electricity Value ($0.07/kWh)	$46 M	$88 M
Carbon Equivalent Emissions Reductions	0.14 MMT	0.26 MMT

The values cited in the table represent renewable energy contributions from facilities owned and operated by publicly owned utilities and non-profit cooperatives. In addition to benefits from the energy related contributions, the utility experience with these installations helps to convince these and other utilities to consider similar renewable energy investments.

C. Performance Measures

The goals of the REPI program are to encourage adoption of renewable energy systems and to increase the involvement and experience base of utilities and other users with these systems. Consequently, the principal measures of program effectiveness relate to (a) the total amount of installed capacity induced by the program

I. **Mission Supporting Goals and Objectives**: RENEWABLE ENERGY PRODUCTION INCENTIVE PROGRAM (Cont'd)

and (b) the number of utilities and other organizations that subsequently invest in renewable energy facilities.

1995 Baseline Measure: A total of 118 MW of renewable energy systems were installed by 5 organizations.

1997 Performance Measure: Installed capacity will have increased to 200 MW and 10 organizations will own qualified facilities.

2003 Performance Measure (the final year of eligibility): A total of 25 organizations will own and operate renewable facilities totaling 400 MW.

II. **Funding Schedule**:

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
REPI	$ 4,659	$ 662	$ 3,489	$ 2,827	+427
Total, Renewable Energy Production Incentive Program	$ 4,659	$ 662	$ 3,489	$ 2,827	+427

III. **Performance Summary**: RENEWABLE ENERGY PRODUCTION INCENTIVE PROGRAM

FY 1995 Accomplishments:

- Renewable Energy Production Incentive ($4,659)

  A rule was developed and published in the Federal Register to formally establish the REPI program.

- Payments were made for energy produced by qualified renewable energy facilities; all applicants received full payment.

III. Performance Summary: RENEWABLE ENERGY PRODUCTION INCENTIVE PROGRAM (Cont'd)

FY 1996 Accomplishments (to date and planned):

- Renewable Energy Production Incentive ($662)

  Payments are being made for energy produced by qualified renewable energy facilities; all applicants will receive full payment.

- Together with stakeholders, efforts are being initiated to develop an improved REPI-type program that would have increased incentive value.

FY 1997 Planned Accomplishments:

- Renewable Energy Production Incentive ($3,489)

  Payments will be made for energy produced by qualified renewable energy facilities; funding should be sufficient to fully pay all applicants.

Explanation of Funding Changes FY 1996 to FY 1997

The increase of $ 2,827,000 in REPI is required to accommodate an estimated increase of 3-6 utility applicants. FY 1996 REPI funding totals $2,988,000 and consists of $662,000 (shown in the table in Section II) contributed from FY 1996 solar energy accounts plus $2,326,000 in FY 1995 carryover funds.

RESOURCE ASSESSMENT

I. **Mission Supporting Goals and Objectives**:

Reliable information on renewable energy resources is essential for the successful design, planning, and deployment of renewable technologies. This information is being developed in ways such that it can be displayed geographically and also temporarily to determine how the various technologies will perform at different locations, and how renewable technologies might be integrated into electric utility systems or be deployed as stand-alone systems. U.S. and international data bases for various renewable technologies are being incorporated into a multi-resource data base at the National Renewable Energy Laboratory (NREL). Products from these data bases are being made available through NREL's Renewable Energy Data Center. Geographic Information Systems are being used as a tool to display resource information, with a particular focus currently on solar and wind resources. Planning for incorporating other renewable resource information into the data base and making it available through the Renewable Energy Data Center has also begun. Due to budget constraints, no program funds are being requested in FY 1997.

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II. **Funding Schedule**:

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Resource Assessment	$ 3,847	$ 1,942	$ 0	$ -1,942	-100
Total, Resource Assessment	$ 3,847	$ 1,942	$ 0	$ -1,942	-100

III. **Performance Summary**: RESOURCE ASSESSMENT

FY 1995 Accomplishments:

- Resource Assessment ($3,847)

  A Cooperative Network for Renewable Resource Measurements solicitation was issued which is expected to add seven solar measurement sites and six wind measurement sites to our exiting resource measurement network.

III. **Performance Summary**: RESOURCE ASSESSMENT (Cont'd)

- Established a center at NREL for data integration and geographic analysis.
- Initiated the development of a comprehensive renewable energy database to include solar, wind and biomass resource data.

FY 1996 Accomplishments (to date and planned):

- Resource Assessment ($1,942)

  Continue development of the Cooperative Solar Measurement Network.

- Continue development of the Comprehensive Renewable Energy Database.
- Increase capabilities of the Renewable Energy Data Center.

FY 1997 Planned Accomplishments:

- Resource Assessment ($0)

  None. Program close out initiated with prior year funds.

Explanation of Funding Changes FY 1996 to FY 1997

The decrease of $ 1,942,000 in Resource Assessment funding effectively terminates the program.

I. Mission Supporting Goals and Objectives:

A. Program Description

The Solar and Renewable Energy Deployment programs strive to increase sales and exports of proven renewable energy technologies. By addressing market barriers; the programs "pull" rather than "push" the technologies into the marketplace, thereby bringing economic growth, jobs, a cleaner environment and a lower price for the technologies in the future.

The Solar and Renewable Energy Deployment programs were established in response to legislative mandates to help ensure rapid and efficient commercialization of renewable energy technologies into domestic and international markets, in order to stimulate near-term economic growth and lay the groundwork for long-term growth. They address specific problems that slow the acceptance of new and existing technologies and speed deployment of technologies by addressing clearly defined target markets or distinct market barriers. The mission of the programs is two-fold: work with industry to accelerate the rate at which viable, new renewable energy technologies are pulled into the marketplace, and increase the extent to which energy market decisions are based on a better understanding of the economics, environmental and energy security benefits of these technologies.

The Solar and Renewable Energy Deployment programs achieve their mission by directly educating consumers; providing technical and financial assistance to emerging renewable energy entrepreneurs to increase private sector investment in market-ready technologies; and supporting the development of fair and competitive international markets for U.S. technologies through the elimination of market barriers.

The Solar and Renewable Energy Deployment Programs have three main thrusts. First, the Solar International Program increases U.S. exports of renewable (RE) technologies worldwide through the development of strategic markets, public/private partnerships and by increasing commercial financing resources for major foreign purchases of U.S. renewable energy products. Second, the Commercialization Ventures (CV) program facilitates the entrance of viable, new renewable energy technologies into the marketplace by reducing financial barriers to their commercialization and by leveraging private sector funding. Finally, the Information and Communications Transfer program supports a coordinated program which provides information and technical assistance to individuals, businesses, State and local governments. While work will continue on existing projects in the Tribal Grants program, no new efforts are anticipated.

I. **Mission Supporting Goals and Objectives**: SOLAR AND RENEWABLE ENERGY DEPLOYMENT (Cont'd)

B. Estimates of Benefits

At the current funding levels, the Commercialization Ventures portion of the Solar and Renewable Energy Deployment programs is expected to yield the following benefits in the U.S.:

	1997	2000	2010	2020
Total Primary Energy Displaced (million MMBtu)	3.7	8.5	30.4	62.2
Carbon Equivalent Emissions Reductions ('000tons)	7.9	13.6	33.2	59.2

The international program will yield similar benefits in the countries purchasing the technologies, while increasing U.S. exports and jobs. Using FY 2000 funding, the Solar International programs will generate $82 million in cumulative exports and $20 million in Federal tax revenues.

C. Performance Measures (highlights)

The following performance measures will be used by the Solar and Renewable Energy Deployment programs to monitor their progress toward meeting its commitments and goals:

1996 Performance Measures

-- Expand international strategy into the Asia/Pacific region and approve 3-5 projects for inclusion in the Initiative on Joint Implementation program.

-- Select an additional 3-4 commercialization ventures projects to receive financial assistance, and provide non-financial business assistance to another 5-10 projects to help secure private venture capital leverage from these projects private investment of at least $15 million.

-- Respond to an estimated 70,000 inquiries through the Energy Efficiency and Renewable Energy Clearinghouse (EREC).

-- Increase the quality and availability of the information available through Energy Efficiency and Renewable Energy Network (EREN) on the World Wide Web, by adding 125 resource links, adding 360 members to the Users Group and implementing a customer survey.

I. **Mission Supporting Goals and Objectives**: SOLAR AND RENEWABLE ENERGY DEPLOYMENT (Cont'd)

-- Mail Technical Information Program (TIP) products to approximately 150,000 customers.

1997 Performance Measures

-- Complete projects in Chile and implement international strategy in another Latin American country.

-- Provide non-monetory business assistance to 5-10 firms through the Commercialization Ventures financial advisor.

-- Respond to 60,000 inquiries through EREC.

-- Achieve a 10 percent increase in development and usage of EREN.

-- Mail TIP products to approximately 150,000 customers.

1998-1999 Performance Measures

-- Increase activities in Asian and Pacific markets and continue to build on preliminary work in Africa.

-- Provide non-financial business assistance to 5-10 firms.

2000 Performance Measures

-- Generate significant exports of renewable energy technologies and Federal tax revenues through information dissemination, technical assistance, participation in international organizations and activities aimed at identifying opportunities for renewable energy technologies in other countries.

-- By the year 2000, 8-10 new renewable energy commercial ventures will have entered the marketplace because of assistance from the Commercialization Ventures program, leveraging at least $1 of private funds for every Federal dollar invested.

II. **Funding Schedule**: SOLAR AND RENEWABLE ENERGY DEPLOYMENT

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Solar International	$ 8,953	$ 3,886	$ 6,149	$ 2,263	+ 58
Commercialization Ventures	11,161	2,840	1,000	-1,840	- 65
Information and Communications	2,153	1,345	1,360	15	+ 1
Tribal Grants	6,600	6,600	0	-6,600	-100
Total, Solar and Renewable Energy Deployment	$ 28,869	$ 14,671	$ 8,509	$ -6,162	- 42

III. **Performance Summary**: SOLAR AND RENEWABLE ENERGY DEPLOYMENT

FY 1995 Accomplishments:

- Solar International ($8,953)

  Promoted renewable energy exports in high priority markets by working with the renewable energy industries and other Federal agencies to develop and implement international strategies that assist industry. Specifically, the markets in Chile, Brazil and Argentina have been accessed through rural electrification; demonstration projects in schools, clinics and other public facilities; and progress under memorandum of understanding.

- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: The U.S Initiative on Joint Implementation (USIJI) assisted private industry, primarily through provision of technical and project assistance, in instituting greenhouse gas emission mitigation projects in other countries to increase exports of U.S. technologies. Identified 7 projects in the Round I that represent $40 million in private investment; held 5 workshops (Costa Rica, Chile and Thailand, plus two domestically). ($3,000)

- Implemented the Committee on Renewable Energy Commerce and Trade (CORECT) export strategy in Latin America and the Caribbean, established multiple cost-shared joint ventures, and opened access to Brazil, Argentina and Chile for near-term exports.

- CORECT has identified 175 project opportunities for the renewables industry, valued at approximately $1.5 billion to date, and helped 16 projects secure outside funding totalling $200 million. In FY 1996, it is hoped that 30 more projects will find financing of $385 million.

- Finalized program plans and initiated training program with U.S. AID for developing country energy

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III. **Performance Summary**: SOLAR AND RENEWABLE ENERGY DEPLOYMENT (Cont'd)

. decision-makers.

- Commercialization Ventures ($11,163)

  The Commercialization Ventures Program finalized the selection of a financial advisor to provide business and technical assistance. The program also selected 5 projects for financial assistance that will leverage over $10 million in private investment.

- Information and Communications ($2,153)

  Energy Efficiency and Renewable Energy Clearinghouse (EREC) responded to 60,000 requests for information. Of those requests, 768 users (approximately 64 per month) received tailored technical and business assistance. Of the EREC users commenting on the Clearinghouse, more than 97 percent have rated the quality of the information and services provided as either "good" or "excellent."

- EREC overhauled and improved the bulletin board system to make it more user friendly. As a result, usage statistics jumped from 200 users in April to approximately 2,000 in June.

- The Technical Information Program (TIP) produced the following products for the Cities and Counties Campaign: 23 fact sheets, resource guide, folder, flyer/order form, updated order form, evaluation card, press kit, article for "Nation Cities Weekly" insert, specialized flyer to economic development contacts, home page and electronic files on NREL World Wide Web server.

- The Education program's Junior Solar Sprint activity distributed 25,000 kits which involved approximately 100,000 students in the 7th and 8th grade in 46 states. Fifty-three host sites ran competitions.

- Tribal Grants ($6,600)

  In FY 1994 and 1995, 35 grants totalling $11.4 million were awarded to 29 tribes and Alaskan native corporations in 13 states. Provided DOE support for ongoing Navajo transmission project administered through Western Area Power Administration. ($6,600)

FY 1996 Accomplishments (to date and planned):

- Solar International ($3,886)

  Through CORECT, develop expanded international strategy to include the Asia/Pacific region, consisting of

III. Performance Summary: SOLAR AND RENEWABLE ENERGY DEPLOYMENT (Cont'd)

activities such as trade missions, trade events and project identification.

- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: Significantly increase project development in partnership with non-governmental organizations active in joint implementation activities to increase exports of U.S. technologies and generate international cooperation on climate change; USIJI Evaluation Panel will conduct workshops, refine project monitoring methodologies, and identify 15-20 Round II projects in cooperation with other federal agencies. ($1,900)

- Monitor existing activities in Chile, Argentina and Brazil; finalize implementation of previously planned activities and curtail future commitments due to decreased funding.

- Commercialization Ventures ($2,840)

  Through the financial advisor, the Commercialization Ventures Program will provide financial assistance to 3-5 new energy businesses and 5-10 energy entrepreneurs with non-financial business assistance.

- Begin Management Plan for Renewable Energy and Energy Efficiency Technologies pursuant to Section 1202 of EPACT; plan will assess program needs, objectives and priorities; establish milestones and identify program areas where funding has changed since previous plan (1994).

- Information and Communications ($1,345)

  EREC will have an electronic mailbox on the Energy Efficiency and Renewable Energy Network (EREN) which will allow customers to directly ask questions about EERE technologies and receive prompt responses (within 48 hours). EREN users will be able to access the EREC bulletin board system via an Internet telnet session.

- EREC expects to maintain level of quality and increase requests through further outreach efforts. Complete an average of one new fact sheet per month.

- The TIP program will complete the final four Cities and Counties fact sheets and develop and implement a comprehensive outreach plan.

- TIP will complete a small business brochure that will target small businesses.

- Tribal Grants ($6,600)

III. Performance Summary: SOLAR AND RENEWABLE ENERGY DEPLOYMENT (Cont'd)

Continue ongoing Navajo transmission project administered by the Western Area Power Administration ($6,100). Provide DOE support for Crow cogeneration plant ($500).

The Tribal Government Assistance will continue to monitor the FY94 and FY95 grants and conduct orderly shutdown of the program using prior year funds (with the exception of the Navajo and Crow projects).

FY 1997 Planned Accomplishments:

- Solar International ($6,149)

  CORECT will continue to provide export and technical assistance to U.S. renewable energy industries in high priority markets, such as Latin and South America, Africa, and Eastern Europe in the new independent countries.

- CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION: USIJI will continue a number of cost-effective projects implemented jointly between U.S. industry and partners in developing countries and countries with economies in transition and will also provide technical assistance to U.S. firms and their partners to increase the quality of projects to ensure a successful completion of the international pilot phase of the program. ($2,000)

- America's 21st Century program will increase the number of cost-shared joint ventures with the public and private sector in Latin America.

- Commercialization Ventures ($1,000)

  Through a financial advisor, the Commercialization Ventures Program will provide non-financial business and technical assistance only. No projects will be directly cost-shared.

- Information and Communications ($1,360)

  Continue EREC programs and maintain quality, although 100% fewer requests will be answered.

- The TIP program will continue focused support and targeted distribution of communications products promoting EE/RE technologies.

- TIP will reach over 150,000 constituents of its target audience with TIP communication products.

- Tribal Grants ($0)

III. Performance Summary: SOLAR AND RENEWABLE ENERGY DEPLOYMENT (Cont'd)

No Activities.

Explanation of Funding Changes FY 1996 to FY 1997

The increase of $ 2,263,000 in Solar International will provide funds for Americas' 21st Century program to continue programs in Chile and Argentina and expand into other Latin American countries; USIJI will be able to develop more cost-shared projects.

The decrease of $ 1,840,000 in Commercialization Ventures will eliminate all direct Federal financial assistance to projects.

The increase of $ 15,000 in Information and Communications will reduce the number of requests which the Energy Efficiency and Renewable Clearinghouse can respond to by 10 percent and will reduce the number of fact sheets developed and distributed by the technical Information Program promoting EERE technologies.

The decrease of $ 6,600,000 in Tribal Grants discontinues the program.

GEOTHERMAL ENERGY R&D

I. Mission Supporting Goals and Objectives:

A. Program Description

The mission of the Geothermal Energy Program is to sponsor research and development in advanced geothermal energy technology, and work in partnership with U.S. industry and electric utilities to provide a competitive energy option for meeting U.S. and worldwide energy needs.

The goal of the Geothermal Energy Program is to achieve, by 2005, a life-cycle cost of producing electricity of 3 cents per KWh (the current cost ranges between 5 to 8 cents per kilowatt-hour). This is expected to result in about 15,000 MW of new capacity installed by U.S. firms during the ensuing decade. The program will accomplish this by collaborating with industry in developing cost-competitive geothermal technologies to: 1) locate and confirm undiscovered geothermal reservoirs, 2) reduce exploration and production drilling costs in hard rock environments, and 3) enhance conversion efficiency of geothermal energy into electric power. The program will also accelerate adoption of geothermal heat pumps (GHP) to reduce electricity demand and greenhouse gas emissions. In addition, research and analysis relating to restructuring in the electric utility industry will be conducted on issues associated with integration of Geothermal systems into an increasingly competitive industry framework. Additional fundamental research on resource characteristics will identify cost-competitive options for systems integration.

These program actions will yield increases in the amount of geothermal energy that can be economically recovered and will assist the U.S. geothermal industry in retaining U.S. market share while capturing up to 50 percent of new geothermal international power markets over the next decade valued in excess of $20 billion.

Geothermal energy in its various forms comprises 40% of the U.S. energy resource base. Electric power from geothermal resources is delivered at low environmental impact and has the highest reliability of base-load power from any source. Geothermal power in the U.S. has grown from 800 megawatts in 1980 to over 2700 installed megawatts today, the largest single fraction of the world's current total of 5800 geothermal megawatts. Technological improvements sponsored by the Department have spurred this advance and have helped U.S. geothermal companies to achieve over $6.0 billion in international resource development agreements signed in the last two years.

The Geothermal Energy Program works closely with the U.S. geothermal industry in developing cost-competitive

I. Mission Supporting Goals and Objectives: GEOTHERMAL ENERGY R&D (Cont'd)

technologies to increase the economic availability of domestic geothermal resources and help provide the U.S. industry with a significant technological advantage in highly competitive overseas markets. Over 50% of the Geothermal Energy Program is cost-shared on a 50/50 basis with industry and other participants. Moreover, Federal and state governments currently receive in excess of $20.0 million each year in geothermal lease and royalty payments.

B. Estimates of Benefits

At the proposed funding levels the Geothermal Energy R&D Program is expected to yield the following quantifiable benefits:

	2000	2010	2020
Annual Primary Energy Displaced	0.04 Q	0.58 Q	1.59 Q
Annual Displaced Electricity Value ($0.08/kWh)	$350 M	$4,130 M	$11,235 M
Carbon Equivalent Emissions Reduction	1.15 MMT	13.71 MMT	38.96 MMT

C. Performance Measures

The following performance measures will be used by the Geothermal R&D Program to track its commitment to reduce the life-cycle cost of producing electricity and increasing the rate of adoption of geothermal heat pumps (GHP).

1996 Performance Measures (highlights)

-- Confirm 1 new resource development area.

-- Establish 2 co-funded sponsors under NADET.

-- Start 3 cost-shared field tests of new energy conversion projects at commercial power plants.

-- Transfer 2 new conventional drilling technology improvements to industry.

-- Achieve installation of 75,000 new GHP units, up from 40,000 in 1994.

I. **Mission Supporting Goals and Objectives**: GEOTHERMAL ENERGY R&D (Cont'd)

-- Co-sponsor 6 utility cost-shared GHP demonstration projects.

1997 Performance Measures

-- Cost-share drilling of 2 or more exploration wells.

-- Transfer 1 new conventional drilling technology improvement to industry.

-- Demonstrate improvement for conventional drilling tools.

-- Cost-share 2 or more additional improved energy conversion projects.

-- Encourage installation of 120,000 new GHP units.

-- Co-sponsor 10 utility cost-shared GHP demonstration projects.

1998-99 Performance Measures

-- Cost-share confirmation of 2 new resource development areas.

-- Reduce conventional drilling and completion costs by 10%.

-- Reduce geothermal power plant operating and maintenance cost by 10%.

-- Move NADET technologies into bench-scale and field-test R&D modes.

-- Complete development of several new advanced high-temperature drill bit systems.

-- Encourage installation of 525,000 new GHP units.

-- Co-sponsor 24 utility cost-shared GHP demonstration projects.

2000 Performance Measures

-- Cost-share confirmation of 1 new resource development area.

I. **Mission Supporting Goals and Objectives**: GEOTHERMAL ENERGY R&D (Cont'd)

-- Complete 2 demonstrations of economic benefits of improved electric generating systems.

-- Encourage installation of 425,000 new GHP units.

-- Co-sponsor 12 utility cost-shared GHP demonstration projects.

II. **Funding Schedule**:

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Geothermal Electric R&D and Development	$ 43,837	$ 28,092	$ 29,118	$ 1,026	+ 4
Geothermal Heat Pump Deployment	1,600	5,300	6,482	1,182	+ 22
Total, Geothermal Energy R&D	$ 45,437	$ 33,392	$ 35,600	$ 2,208	+ 7

III. **Performance Summary**: GEOTHERMAL ENERGY R&D

FY 1995 Accomplishments:

- GEOTHERMAL ELECTRIC POWER R&D ($43,837)

  Exploration

  -- Drilled two exploration wells, in conjunction with industry, to characterize new reservoirs and to discover and characterize new geothermal fields.

  -- Cost-shared with industry the successful application of new integrated exploration strategies, i.e., remote sensing and biogeochemistry techniques.

  -- Completed first of two slimhole wells, jointly funded with industry, to verify cutting exploration costs by 50% and predicting reservoir performance from a slimhole.

- Drilling

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III. **Performance Summary**: GEOTHERMAL ENERGY R&D (Cont'd)

-- Began a national R&D program on advanced drilling and excavation technologies, cost-shared with industry and other Federal agencies, to produce a revolutionary system for rock penetration at much lower cost than possible with current technology.

-- Constructed a new facility for full-scale lost circulation control testing and initiated pumping tests of new lost circulation sealing materials with industry to evaluate performance.

-- Designed and tested improved synthetic diamond bits in cost-shared programs with industry and DOE's Office of Fossil Energy, to reduce cost of drilling.

- Reservoir Technology

-- Cost-shared with industry and various government entities the design of a strategy to inject fluids from municipal wastewater plants into The Geysers steam field to restore and maintain power production levels while addressing waste water disposal issues.

-- Evaluated selected international markets to provide information to the U.S. geothermal industry that will assist in penetrating overseas energy markets.

-- Canceled the hot dry rock demonstration plant solicitation and initiated plans for site restoration and/or transfer efforts at Fenton Hill, N.M. Initiated plans to integrate hot dry rock R&D activities into mainstream geothermal R&D programs.

- Energy Conversion

-- Analyzed cost-shared field test data on a prototype Biphase rotary separator turbine.

-- Developed and tested new materials (such as coatings for heat exchangers) and processes (such as super-saturated turbine expansions and waste handling technology) to reduce costs associated with geothermal operations.

- Environment

-- Initiated plans with industry to cost-share construction of The Geysers pipeline project.

-- Awarded a cooperative agreement for the cost-shared construction of a 5 MW "ice-breaker" power plant in Lee Hot Spring, NV.

III. Performance Summary: GEOTHERMAL ENERGY R&D (Cont'd)

-- Conducted three environmental site reviews and restored one site.

- Hydropower

-- Selected two advanced hydropower turbine proposals for contract negotiations for the development of conceptual designs.

- GEOTHERMAL HEAT PUMP PROGRAM ($1,600)

-- Working with utility partners, conducted initial benchmarking studies of geothermal heat pump installation and technology, utility marketing practices, existing financing options, and consumer preferences.

-- Established the Geothermal Heat Pump (GHP) Consortium with over 100 utility members representing the majority of electricity consumers in the Nation.

FY 1996 Accomplishments (to date and planned):

- GEOTHERMAL ELECTRIC POWER R&D ($28,092)

Exploration

-- Introduce advanced technologies (i.e., integrated exploration techniques) for finding hidden geothermal resources at lower exploration costs and reduced risk.

-- Confirm 1 to 2 new geothermal fields under the industry-coupled drilling program.

- Drilling

-- Under the national R&D program on advanced drilling and excavation technologies, establish cofunded partnerships with other stakeholders to develop revolutionary drilling technologies for rock penetration.

-- Field-test the "drillable straddle packer" technology to plug lost circulation zones in wells and transfer to industry.

III. **Performance Summary**: GEOTHERMAL ENERGY R&D (Cont'd)

-- Complete the prototype design of a new downhole instrument system capable of supporting scientific measurements in geothermal and deep gas wells at temperatures between the present limit of 180 degrees Celsius and 300 degrees Celsius.

-- Train industry personnel in use of tools for measuring pressure/temperature in adverse downhole environments and transfer technology to industry.

-- Complete development of new rolling float and doppler flowmeters and transfer to industry.

- Reservoir Technology

-- Conduct several cost-shared cooperative field tests with industry to correct pressure declines at The Geysers steam field.

-- Develop plans, in cooperation with industry, for a restructured hot dry rock program to address the remaining technological and economic uncertainties associated with commercializing this very large geothermal resource.

-- Develop and test improved technologies to measure characteristics of subsurface hydrothermal systems and dependably produce geothermal fluids from the reservoirs.

- Energy Conversion

-- Evaluate technologies to improve the efficiency and effectiveness of energy conversion processes, including direct use, materials, process chemistry, waste handling, and heat transfer processes.

-- Retrofit direct contact condenser improvements.

-- Construct full-scale Biphase turbine-electric system.

-- Begin construction of prototype waste treatment project at The Geysers.

- Environment

-- Conduct environmental monitoring and compliance review of selected geothermal projects and restore one site.

III. Performance Summary: GEOTHERMAL ENERGY R&D (Cont'd)

-- Continue Lake County cost-shared pipeline project with industry at The Geysers.

-- Begin feasibility study for piping treated effluents from Santa Rosa to The Geysers streamfield.

-- Complete final report on Geopressured-Geothermal Program.

- Hydropower

-- Complete conceptual design phase of the advanced hydropower turbines; initiate request for proposals for detailed engineering design and model testing phase.

- GEOTHERMAL HEAT PUMP PROGRAM ($5,300)

Implement two regional utility cost-shared model GHP programs: acquire and begin analysis of statistically-valid electric load and system performance data; coordinate with the DOE Building's market pull collaboratives.

FY 1997 Planned Accomplishments:

- GEOTHERMAL ELECTRIC POWER R&D ($29,118)

Exploration
Analyze data from cooperative field tests with industry; conduct field case studies using new integrated exploration tools; cost-share the drilling of several exploratory wells.

- Drilling

-- Under the national R&D program on advanced drilling and excavation technologies, begin cost-share joint ventures to develop and test revolutionary drilling technologies for rock penetration.

-- Complete bit work in developing new synthetic diamond drill bits.

-- Complete the prototype design of a new downhole power system capable of providing power to supporting scientific measurements at temperatures between the present limit of 180 degrees Celsius and 300 degrees Celsius.

-- Complete commercialization of the downhole mud-hammer-driver drilling system.

III. Performance Summary: GEOTHERMAL ENERGY R&D (Cont'd)

-- Field test new expert system and foam system under the lost circulation control activities.

- Reservoir Technology

  -- Conduct reservoir studies in new areas needed by U.S. industry to effectively compete in all markets, leading to the capture of 50% of the world geothermal market.

  -- Initiate program activities to address the remaining technological uncertainties in the new industry-led dry hot rock (HDR) program.

  -- Complete Fenton Hill HDR site restoration and/or transfer of programmatic responsibility to another user organization.

- Energy Conversion

  -- Completed development of 5MW powerplant at Lee Hot Spring, Nevada.

  -- Complete design of advanced energy conversion demonstration plant.

  -- Cost-share test of thermally conductive coatings.

  -- Complete prototype waste treatment project at The Geysers and begin full-scale operations.

- Environment

  -- Implement the Lake Country project to inject treated wastewater effluent into The Geysers steamfield leading to the displacement of 330,000 tons of carbon dioxide emissions annually.

  -- Complete feasibility study for piping treated effluents from Santa Rosa to The Geysers steamfield.

- Hydropower

  -- Select advanced hydropower turbine proposals for detailed engineering design and for model fabrication and testing.

- GEOTHERMAL HEAT PUMP PROGRAM ($6,482)

III. Performance Summary: GEOTHERMAL ENERGY R&D (Cont'd)

-- Implement three regional utility cost-shared GHP programs: continue collection and analysis of statistically-valid electric load and maintenance data, verify annual GHP sales of 120,000 units in 1997; coordinate with the DOE Building's and EPA's programs to improve GHP financing and building envelopes.

Explanation of Funding Changes FY 1996 to FY 1997

The increase of $ 1,026,000 in Geothermal Electric R&D and Development allows completion of funding for The Geysers Pipeline project, and a slight increase in drilling R&D identified by industry as a high priority.

The increase of $ 1,182,000 in Geothermal Heat Pump Deployment restores funds lost in previous years and puts this activity on schedule for completion of 2000 goals.

HYDROGEN RESEARCH AND DEVELOPMENT

I. Mission Supporting Goals and Objectives:

A. Program Description

The mission of the Hydrogen Research and Development program is to encourage and support the development of cost competitive hydrogen technologies and systems that will reduce the environmental impacts of energy use and enable renewable energy resource penetration into the U.S. energy mix. Hydrogen produced using renewable energy power systems or generated by gasification of biomass can be stored and transported to U.S. energy end-use markets (utility, transportation, industrial) and converted directly to electricity in a fuel cell or into thermal energy via combustion. To achieve its mission, the hydrogen program will: 1) conduct a core research and development effort in critical mid- to long-term production, storage and transport technologies for application in renewable energy systems; 2) cost-share with industry on hydrogen production by photochemical, gasification and reforming processes for near-term market introduction; 3) undertake industry and public outreach and education to improve technology transfer for application of research results for: increasing domestic energy supply options; reducing reliance and expenditures on imported oil; and reducing greenhouse gases and air pollutant emissions by displacement of fossil fuels.

B. Estimates of Benefits

The estimated benefits are based on a contribution of hydrogen fuel cells to the nation's future electricity generation mix. Hydrogen fuel cells are expected to account for 36 GW, a 4.2% share of the projected U.S. total by the year 2020. Between 2016-2020, models project installation of an additional 21 GW of fuel cells, 27% of all new electric capacity.

	2000	2010	2020
Annual Primary Energy Displaced	0.00 Q	0.01 Q	1.16 Q
Annual Displaced Electricity Value ($0.07/kWh)	$7 M	$73 M	$8,123 M
Carbon Equivalent Emissions Reductions	0.02 MMT	0.15 MMT	17.06 MMT

C. Goals

-- 2005 - Hydrogen use increases from 0.3Q/yr (as a chemical feedstock to produce reformulated gasoline) to

I. Mission Supporting Goals and Objectives: HYDROGEN RESEARCH AND DEVELOPMENT (Cont'd)

0.6Q/yr (as a transportation fuel and chemical feedstock) the equivalent of 54 million barrels of oil.

-- 2010 - Deployment of new production technologies reduces emissions by: 61,000 tons per year NOx, 1,000,000 tons per year CO, and 46 million tons per year CO2.

-- 2010 - Biomass and municipal solid waste gasification contribute the equivalent of 0.2Q/yr production capacity of hydrogen.

-- 2025 - Renewable energy source hydrogen production contribute the equivalent of 10Q/yr in the primary energy market.

Performance Measures (highlights)

-- Develop the engineering data for the design of a process development unit to demonstrate sorbent enhanced steam methane reforming for hydrogen production. (1996)

-- Scale-up from 1 kW to 10kW solar reactor for production of hydrogen bromide. Integrate with an electrochemical cell to electrolyze hydrogen bromide into hydrogen gas. (1996)

-- Develop a laboratory-scale bioreactor to test the feasibility of producing hydrogen from oxygen tolerant algal mutants on a continuous basis. (1996)

-- Optimize silicon-hydrogen multi-junction structures, reduce anodic and cathodic overpotentials of thin-film catalysts with demonstrated stability in alkaline electrolytes and demonstrate stable high efficiency (10%) photoelectrodes for water splitting. (1996)

-- Develop an experimental engineering evaluation platform for a lightweight hydride storage bed and delivery system. Address hydride material and bed fabrication, temperature component design and fabrication, hydrogen sensor technologies, and hydrogen safety issues. (1996)

-- Design a process development unit to demonstrate sorbent enhanced steam methane reforming scaled to 0.1 MM SCFD of hydrogen. (1997)

-- Connect 10 kW solar reactors, for production of hydrogen bromide, in parallel to feed one 100 kW electrolyzer/fuel cell to be demonstrated in an integrated hydrogen production/storage/utilization system. (1998)

II. **Funding Schedule**: HYDROGEN RESEARCH AND DEVELOPMENT

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Hydrogen Research and Development	$ 8,940	$ 14,500	$ 11,012	$ -3,488	- 24
Total, Hydrogen Research and Development	$ 8,940	$ 14,500	$ 11,012	$ -3,488	- 24

III. **Performance Summary**: HYDROGEN RESEARCH AND DEVELOPMENT

FY 1995 Accomplishments:

- Hydrogen Research and Development ($8,940)

  Achieved a yield in excess of 40% for a solar-driven conversion of bromine vapor with water to hydrogen bromide, demonstrating an economically feasible process for hydrogen production using a solar reactor.

- Produced less than 5 ppm NOx under motor conditions using gas blends containing greater than 30% hydrogen with natural gas to meet ultra-low emission vehicle criteria.

- Demonstrated significant direct hydrogen production using algae and sunlight with greater than 3% of the solar energy stored as hydrogen fuel.

- Initiated a photobiological hydrogen production collaborative project between the U.S. (University of Hawaii) and Japan.

- Determined experimentally that twelve times as much hydrogen could be stored on fabricated microcylinders of carbon (nanotube material) compared to commercially activated carbon under the same conditions.

FY 1996 Accomplishments (to date and planned):

- Hydrogen Research and Development ($14,500)

  Initiate optimization of properties of new membranes for use in high temperature electrolysis (150 C range) with solid polymer electrolyte cells for hydrogen production.

- Complete design of municipal solid waste (MSW) separator modules to be used in an MSW gasifier for the production of hydrogen from wastes and biomass.

III. **Performance Summary**: HYDROGEN RESEARCH AND DEVELOPMENT (Cont'd)

- Complete testing of new catalysts to optimize steam reforming of gasified biomass to hydrogen.
- Complete synthesis, characterization and testing of new lightweight metal hydride alloys for high density hydrogen storage.
- Complete testing of advanced semiconductors for optimizing photoelectrochemical production of hydrogen.
- Complete synthesis improvements of carbon nanotubes for hydrogen storage and characterization of properties.

FY 1997 Planned Accomplishments:

- Hydrogen Research and Development ($11,012)

  Complete proof of concept of a hydrogen storage and delivery system using metal hydrides installed on-board a utility vehicle.

- FY 1998 Planned Accomplishments:

  -- Complete prototype scale-up of a 10 kW photochemical hydrogen production system to 100 kW.

  -- Complete installation of 0.1 MM SCFD process development unit for process optimization and scale-up of low temperature reforming of natural gas.

  -- Complete installation of a direct hydrogen-fueled 200 kW phosphoric acid fuel cell for stationary power generation.

Explanation of Funding Changes FY 1996 to FY 1997

The decrease of $ 3,488,000 in Hydrogen Research and Development will eliminate cost-shared industrial R&D directed toward near-term production and end-use technologies including advanced reforming and photochemical production, while maintaining core R&D efforts in hydrogen production and storage.

I. **Mission Supporting Goals and Objectives**:

ELECTRIC ENERGY SYSTEMS AND STORAGE:

The primary mission of the Electric Energy Systems and Storage program is to develop, in collaboration with industry, the advanced supporting power delivery technologies that will increase the flexibility, capacity and efficiency of the Nation's electric power systems and will also enable increased utilization of renewable energy power systems. The Transmission and Distribution R&D program, the High Temperature Superconductivity program, and the Energy Storage R&D program all contribute to this primary mission. A complementary mission of this program cluster is to address potential electric-related institutional and environmental issues which affect the implementation of efficient and cost-effective power delivery. The Electric and Magnetic Fields (EMF) R&D and Climate Challenge programs contribute to this second mission.

A. HIGH TEMPERATURE SUPERCONDUCTIVITY: DESCRIPTION, BENEFITS, AND PERFORMANCE MEASURES

The Department leads the national effort to capture the energy saving potential of superconductivity - the ability of certain materials to carry electricity without resistance losses. The program has mobilized the resources of U.S. industry, national labs and universities to accomplish the two major program goals: solving the difficult problem of manufacturing electrical wires from the family of brittle ceramic materials discovered in 1986 while, in parallel, assisting in the design and development of superefficient motors, transmission cables, generators, transformers, storage devices andcurrent limiters that use these wires.

Superconductivity technology has the promise of increasing electric utility capacity and flexibility, and increasing motor and generator efficiencies above 98 and 99 percent, respectively. The underlying knowledge base needed by researchers to understand and use superconductors is created in the Materials Research component of the program. Superconductivity device technology is created in the Devices and Systems Research component of the program which supports initial efforts on promising concepts that will lead to future utility sector applications. This includes the very successful Superconductivity Partnership Initiative (SPI) which was singled out for praise in the FY 1996 report of the House Energy and Water Development Subcommittee on Appropriations. The SPI is a focused team effort by DOE and industry to drastically reduce the development time (from 10 years to 5 years) for initial commercial introduction of advanced, energy-saving superconducting products. In addition, research and analysis relating to restructuring in the electric utility industry will be conducted on issues associated with integration of High Temperature Superconductivity (HTS) systems into an

I. Mission Supporting Goals and Objectives: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

increasingly competitive industry framework.

At the proposed funding level, the Superconductivity program is expected to yield the following quantifiable benefits:

Superconductivity:	2000	2010	2020
Annual Primary Energy Displaced	0.00 Q	0.03 Q	0.15 Q
Annual Displaced Electricity Value ($0.07/kWh)	$0 M	$239 M	$1,025 M
Carbon Equivalent Emissions Reductions	0.00 MMT	0.62 MMT	2.82 MMT

The principal goal of the superconductivity program is to achieve significant technology advancements that will enable U.S. industry to proceed to commercial development of electric power applications of high temperature superconductivity.

1996-2000 Performance Measures

-- Develop electrical wire with performance of 1,000,000 ampere-meters.

-- Develop electrical wire with cost of $0.01 per ampere-meter.

-- Complete utility qualification testing of 30 meter 115 kV electric transmission cable.

-- Complete qualification testing of 1000 horsepower motor.

-- Sales made of electric utility fault current limiter.

B. ENERGY STORAGE: DESCRIPTION, BENEFITS, AND PERFORMANCE MEASURES

In response to utility needs and increasing opportunities for use of renewable generating technologies, the Energy Storage R&D program is working to develop cost effective storage systems based upon current and future battery technologies, flywheels and superconducting magnetic energy storage. The storage systems will be deployed to enhance utility performance, reliability, reduce costs, and enable use of renewables in high value applications.

I. **Mission Supporting Goals and Objectives**: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

At the proposed funding level, the Energy Storage R&D program is expected to yield the following benefits:

Energy Storage R&D:

Year	2000	2010	2020
Annual Primary Energy Displaced	0.00 Q	0.02 Q	0.03 Q
Annual Displaced Electricity Value ($0.07/kWh)	$11 M	$112 M	$189 M
Carbon Equivalent Reductions	0.00 MMT	0.43 MMT	0.65 MMT

Additional benefits of Energy Storage R&D goal will be to further increase the potential for renewables penetration by 20% by 2010 through the integrated use of storage; this would enhance all reported renewables generation by an additional 20%. In addition to the benefits of energy saved, energy storage also will increase the value of utility power through increased power quality. The deregulation of utilities is bringing about a period of change and uncertainty; deferral of retrofits and upgrades through the increased use of storage may be a preferred strategy until the business climate has stabilized.

The primary goal of the Energy Storage program is to provide advanced technology to increase reliability and performance and therefore competitiveness (including reducing the environmental impact) of generation, transmission, and distribution in the U.S. electric grid system. Success will help increase U.S. industry competitiveness by improving power quality and reliability.

1996-1997 Performance Measures

-- 1996 Continue testing and evaluation of current generation storage components and development of Transportable Battery Energy Storage System (TBESS).

-- 1996 Complete PQ 2000 power quality device (2MW/10 sec) and field test at Pacific Gas and Electric.

-- 1997 Initiate an integrated renewable/generation/storage (RGS) system with 70% cost share by manufacturers and utilities which will result by FY99 in prototype turnkey modular systems. The potential of storage systems coupled with renewable generators is estimated to increase potential market penetration levels for renewables by 20% by 2010.

-- 1997 Develop an Advanced Battery Storage System (ABS) with 50% cost share by host utility and manufacturers which uses a cost-effective and flexible modular approach.

I. Mission Supporting Goals and Objectives: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

-- 1997 Evaluate next generation energy storage technologies for performance and cost-effectiveness in utility use.

1998-1999 Performance Measures

-- Initiate development of a substation power quality device based on advanced power electronics and storage technologies in concert with Public Service Co. of New Mexico and other industrial and utility partners.

-- Incorporate next generation energy storage technologies into renewable and other utility packages.

-- Test and evaluate completed Renewable Generation Storage System.

-- Complete development and testing of Transportable Battery Energy Storage System and Advanced Battery Storage Systems.

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C. TRANSMISSION AND DISTRIBUTION: DESCRIPTION

Power converter and power conditioning equipment components represent major cost items for the integration of renewable energy generation technologies into the power delivery system, and in the cost of transmission technologies to deliver power from remote renewable energy generation sites. The development, in collaboration with industry, of advanced voltage-source converter configurations which use fewer components, and the fabrication of advanced power electronic switching materials, such as silicon carbide, in these new configurations can reduce these costs by approximately one half. These and related analytical studies on system integration and real-time system control for renewable energy generation and storage units and superconducting power sector equipment are directly focused on meeting the mission requirements of the Electric Energy Systems and Storage program. Unfortunately, the T&D portion of this activity is being terminated in FY 1996 with no appropriation due to budget constraints and higher program priorities.

D. ELECTRIC AND MAGNETIC FIELDS DESCRIPTION, BENEFITS, AND PERFORMANCE MEASURES:

The Electric and Magnetic Fields R&D program manages a portfolio of coordinated health effects research and exposure measurements that will enable the National Institute of Environmental Health Sciences to assess the risk to human health from exposures to electric and magnetic fields that are associated with the generation,

I. **Mission Supporting Goals and Objectives**: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

delivery and use of electricity. It also supports communication efforts to keep the public and other decision makers informed about this issue. This portfolio consists of two coordinated and interdependent subprograms: the EMF Biological Mechanisms Research program for which $4 million is being requested and the five-year EMF Research and Public Information Dissemination program for which $4 million is requested for its fourth year.

Private sector sources estimate that the public concern about uncertainty over whether exposure to electric and magnetic fields (EMF) causes health effects already costs the Nation more than $1 billion per year. Some studies suggest, but have not proven, that higher magnetic field exposures from proximity to power lines and electrical equipment result in an increase in the incidence of diseases such as leukemia, brain cancer, breast cancer, and Alzheimer's disease. The five-year EMF Research and Public Information Dissemination program and the coordinated EMF Biological Mechanisms Research program will provide the scientific information base for a risk assessment to be performed by the National Institute of Environmental Health Sciences in 1998. This should significantly reduce uncertainty on the issue and enable policy makers and the public to make informed decisions.

The following performance measures will be used by the Electric and Magnetic Fields (EMF) R&D program to track its commitments to significantly reduce uncertainty on this potential health issue and enable policy makers and the public to make informed decisions.

1996-1997 Performance Measures

-- Obtain matching non-Federal contributions for the EMF Research and Public Information Dissemination program.

-- Disseminate current and credible information on the issue, to all stakeholders and other interested parties.

1998-1999 Performance Measures

-- Complete planned health effects research and exposure assessments leading to a risk assessment by the National Institute of Environmental Health Sciences in 1998.

-- Publish and disseminate a risk assessment (by NIEHS) concerning health effects from exposure to electric and magnetic fields.

I. Mission Supporting Goals and Objectives: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

E. CLIMATE CHALLENGE: DESCRIPTION, BENEFITS, AND PERFORMANCE MEASURES

Climate Change Action Plan -- Partnerships for Technology Introduction: The mission of the Climate Challenge program is to encourage the electric utility industry to voluntarily reduce, avoid, or sequester greenhouse gas emissions using currently available, cost-effective ("no-regrets") means. The program is a joint initiative of the electric utility industry and the Department of Energy in response to the 1992 Framework Convention treaty. It was formally launched in April 1994 through the signing of a Memorandum of Understanding between all the major utility trade associations and DOE. Electric utilities voluntarily sign agreements with DOE that commit them to individualized, flexible plans to achieve reductions. In addition to making reductions in their own operations, utilities can contribute to any of nine industry-wide initiatives which the trade associations have developed in support of Climate Challenge. DOE, in return, provides technical information and support, reports on the progress of the program, and provides public recognition to utility participants.

The Climate Challenge program offers numerous benefits to the Nation. These include:

1. Demonstrates the value of using voluntary cooperation from industry, rather than traditional command-and-control regulation, to achieve environmental objectives. This program is highly popular with industry as a prudent response to the climate change issue.

2. Achieves measurable greenhouse gas reductions. As of January 1996, 577 utilities (accounting for over 60 percent of U.S. electrical generation and current carbon emissions) had either signed individually or participated in 113 agreements with DOE. DOE estimates that these reported commitments will reduce emissions by over 43 million metric tons of carbon equivalent in the year 2000. This estimate is conservative, as it does not include reductions not yet quantified, such as results from the nine industry-wide initiatives.

3. Raises awareness of the many cost-effective methods available to electric utilities to reduce greenhouse gas emissions, so that greenhouse gas mitigation is a factor considered in utility planning and management.

4. Spurs the utility industry voluntarily to make investments in new energy-efficient and renewable energy technologies and projects.

5. Strengthens the U.S. position in the on-going international climate change negotiations.

1996-2000 Performance Measures

I. **Mission Supporting Goals and Objectives:** ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

-- As a measure of the efficacy of using voluntary means rather than command-and-control regulation, the Climate Challenge program will track the continued acceptance by the utility industry of the use of voluntary, cost-effective, "no regrets" methods to reduce greenhouse gas emissions.

-- The Climate Challenge program plans to sign up over 650 utilities by 1997, and over 750 members by 1999.

II. **Funding Schedule:**

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
High Temperature Superconductivity R&D	$ 17,748	$ 22,585	$ 23,050	$ 465	+ 2
Energy Storage R&D	4,792	2,000	4,000	2,000	+100
Transmission and Distribution R&D	5,784	0	0	0	0
Electric and Magnetic Fields R&D	13,064	9,699	8,000	-1,699	- 18
Climate Challenge	0	0	1,000	1,000	>999
Total, Electric Energy Systems and Storage	$ 41,388	$ 34,284	$ 36,050	$ 1,766	+ 5

III. **Performance Summary:** ELECTRIC ENERGY SYSTEMS AND STORAGE

FY 1995 Accomplishments:

- HIGH-TEMPERATURE SUPERCONDUCTIVITY R&D ($17,748)

  -- Los Alamos made headlines world-wide by inventing a process for making long lengths of flexible superconducting wire able to carry over 1 million amperes per square centimeter (the equivalent value for copper wire is 800).

  -- Superconductivity featured in July 17 Time magazine as one of "10 areas of innovation that will affect people all over the globe." The Los Alamos breakthrough is reported.

  -- New, strong, vertically integrated teams begin development of electric utility transformers and transmission cables (an earlier team began developing cables in FY94).

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III. **Performance Summary**: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

-- A California utility completed initial testing of a first-of-its-kind superconducting fault current limiter in an operating substation.

- ENERGY STORAGE R&D ($4,792)

-- Characterized an engineering prototype PV/Diesel/Battery hybrid power control system during testing at Sandia Photovoltaic Systems Test Facility.

-- Designed and built the 250 kW bridge component for the PQ2000, a 2MW/10 second power quality enhancement system developed with AC Battery, Pacific Gas and Electric and the state of Wisconsin.

-- Completed fabrication and factory test of a 33kW/100kWh zinc/bromine advanced battery.

-- Confirmed the feasibility for utility applications of a 12 kWh sodium/sulphur advanced battery at the Sandia Battery Evaluation Facility.

- TRANSMISSION AND DISTRIBUTION R&D ($5,784)

-- Completed and tested a physical control model of an advanced HVDC inverter using multi-level waveform synthesis and configuration.

-- Initiated materials research to develop fabrication processes for silicon carbide and diamond materials for advanced power electronic switching devices.

-- Initiated collaborative operational tests with BPA, WAPA, the Bureau of Reclamation and EPRI to evaluate synchronized power system measurements on the electrical system for the western United States.

-- Completed operational testing of high phase order transmission concept to validate the feasibility of increasing transmission power flows.

-- Developed a distribution system simulator and used it to test the application of artificial intelligence and neural networks for increased utility distribution system control.

- ELECTRIC AND MAGNETIC FIELDS R&D ($13,064)

-- Distributed 100,000 copies (English and Spanish) of the first comprehensive federal EMF publication, "Questions and Answers about EMF" (DOE/EE-0040), and established EMF Infoline (1-800-363-2383).

III. **Performance Summary**: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

-- Updated and coordinated multi-year plan for the EMF Biological Mechanisms Research program.

-- Installed advanced EMF exposure systems at four Government laboratories for replication studies.

-- 25 biomedical multi-year research studies underway and 5 new studies initiated at NIEHS to determine possible EMF effects on cells and animals. Additional experiments underway to determine whether EMF exposure affects cell proliferation, differentiation, and immune function.

- CLIMATE CHALLENGE ($0)

CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION:
Working in collaboration with the four major national electric utility trade associations, TVA, and members of an ad hoc task force of utility representatives, DOE Solar and Renewable Resource Technology staff achieved the following key steps leading to the formation and initiation of the Climate Challenge program:

-- Obtained strong backing from industry as shown by signed greenhouse gas reduction agreements representing more than 500 electric utilities and over 60 percent of the nation's electric generation capacity.

-- Obtained commitments for reduced atmospheric emissions of over 43 million metric tons of carbon equivalent in the year 2000 through voluntary reductions.

-- Confirmed effectiveness of applying a voluntary approach to reducing emissions of greenhouse gases, rather than enforcing more traditional, command-and-control methods.

-- Catalyzed an industry-led program involving nine initiatives seeking coordinated voluntary reductions, including a $50 million private venture capital fund directed at energy-efficient and renewable energy technologies and projects.

FY 1996 Accomplishments (to date and planned):

- HIGH-TEMPERATURE SUPERCONDUCTIVITY R&D ($22,585)

-- The FY96 activities are on schedule with the 5-year requirement mandated by Section 2117 of the 1992 Energy Policy Act. In particular, progress is being made on "activities that address the development of

III. Performance Summary: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

high-temperature superconducting materials that have increased electrical current capacity, which shall be the emphasis of the program" and "activities that will assist the private sector with designs for more efficient electric power generation and delivery systems".

-- Superconductivity named as "Technology of the Year" by Industry Week magazine December 18, 1995 as a result of progress made in wire manufacture by American Superconductor Co. (MA), a principal program participant.

-- Oak Ridge and Los Alamos collaborate to reproduce the 1995 Los Alamos world record flexible wire results using an alternative lower cost process invented at Oak Ridge National Laboratory.

-- SPI teams complete initial tests of advanced, first of a kind, motor and transmission cable. Both these developments show the progress made by companies developing designs for more efficient electric systems.

- ENERGY STORAGE R&D ($2,000)

-- Install for operational testing the first PQ2000, a 2MW/10 second power quality enhancement system developed with AC Battery, Pacific Gas and Electric and the state of Wisconsin.

-- Install and operate a 32 kW/28 kWh AC Battery module with a 9 kW PV array at the Georgia Tech Natatorium, site of swimming and diving events at the 1996 Summer Olympic Games.

-- Complete the design of a transportable battery energy storage capable of delivering 1 MW for 30 seconds.

- TRANSMISSION AND DISTRIBUTION R&D ($0)

-- Proceed with the orderly closeout of the program.

- ELECTRIC AND MAGNETIC FIELDS R&D ($9,699)

-- Receive and distribute National Academy of Science report on biological effects of EMF and preliminary evaluation of potential health risks.

-- Perform experiments to determine dose/effect characteristics of reported EMF hormonal effects and conduct research to determine cellular site of EMF interactions.

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III. **Performance Summary**: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

-- Continue intensive communication program: answering over 10,000 calls with the EMF Infoline; distributing over 100,000 copies of Questions and Answers about EMF; and publish Questions and Answers about EMF in the Workplace.

- CLIMATE CHALLENGE ($0)

CLIMATE CHANGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION:
DOE staff, together with staff from the four major utility trade associations, achieved the following during the early implementation phase of the Climate Challenge program:

-- Increase participation of the electric utility industry in terms of number of signed agreements.

-- Contribute to a strong U.S. position during international climate change treaty negotiations.

-- Confirm strong implementation of pledges in the signed individual agreements with over 60 percent of the utility industry.

-- Attain major contributions from Climate Challenge industry-wide agreements.

FY 1997 Planned Accomplishments:

- HIGH-TEMPERATURE SUPERCONDUCTIVITY R&D ($23,050)

-- Industrial teams form to exploit the electrical wire fabrication breakthroughs at Los Alamos and Oak Ridge. World leadership will stay with the U.S.

-- Significant progress made in major development activities: transmission cables, large industrial motor, current limiter and transformer. This portfolio is the most comprehensive in the world.

-- Current limiter project completed with electric utility testing on an operating system.

- ENERGY STORAGE R&D ($4,000)

-- Complete operational testing of the PQ2000, a 2MW/10 second power quality enhancement system and install the device at a user facility for permanent service.

III. **Performance Summary**: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

-- Produce a conceptual design of a 12 kV level power quality Secure Bus device and plan for development and testing at a new substation at Sandia National Labs.

-- Design a 500 kW/500kWh prototype transportable advance battery storage system to be tested at a host utility site in FY 1998.

-- Begin testing, at a utility host site, a transportable battery energy storage system capable of 1 MW for 30 seconds.

- TRANSMISSION AND DISTRIBUTION R&D ($0)

-- None. Program closed out with prior year funds.

- ELECTRIC AND MAGNETIC FIELDS R&D ($8,000)

-- Perform experiments to identify the biophysical basis for replicated EMF biological effects and relevant EMF exposure parameters.

-- Continue intensive communication program through the EMF Infoline for telephone inquiries and the publication and distribution of booklets that are updated with the most recent information.

- CLIMATE CHALLENGE ($1,000)

CLIMATE CHALLENGE ACTION PLAN: PARTNERSHIPS FOR TECHNOLOGY INTRODUCTION:
-- Increase participation in the Climate Challenge program to include a minimum of 750 electric utilities.

-- Monitor and report major utility accomplishments during the first two years of the program.

-- Summarize and publicize individual utility actions that may be replicated by other utilities.

-- Conduct lessons-learned analysis to identify cost-effectiveness, public acceptance, and economic soundness of mitigation activities.

III. Performance Summary: ELECTRIC ENERGY SYSTEMS AND STORAGE (Cont'd)

Explanation of Funding Changes FY 1996 to FY 1997

The increase of $ 465,000 in High Temperature Superconductivity R&D will result in a reduced level of design effort for advanced superconducting electrical devices and systems.

The increase of $ 2,000,000 in Energy Storage R&D proposed for FY 1997 will be highly leveraged by industry (70 percent cost share) to initiate an integrated renewable/generation/storage (RGS) system development activity which will result by FY99 in prototype turnkey modular systems. The potential of RGS systems coupled with renewable generators is estimated to further increase potential market penetration levels of renewables in 2010 by 20 percent. The increase will also provide for completion of the design study for a hybrid storage/renewable system at Sacramento Municipal Utility District and Construction of the Transportable Battery Energy Storage System. The Advanced Battery System - a modular storage system which is compact, flexible and cost-effective - will be developed.

The decrease of $ 1,699,000 in Electric and Magnetic Fields R&D is necessitated by other program priorities. The request for the fourth year of the five-year EMF Research and Public Information Dissemination program remains nominally the same. The decrease essentially occurs in the EMF Biological Mechanisms Research program and reflects a balance between these two program within the $8 million request level. Both programs are coordinated and independent. Their efforts are focussed on enabling the National Institute of Environmental Health Sciences to assess risk as one of the last activities of the five-year EMF Research and Public Information Dissemination program.

The increase of $ 1,000,000 in Climate Challenge will allow DOE to uphold its commitment to the already recruited 577 utility Climate Challenge members. DOE committed to support these members by working with appropriate organizations to remove barriers to implementation of the Climate Challenge agreements, by providing technical support, and by showcasing utility accomplishments. DOE requires resources to fulfill its commitments to the large number of Climate Challenge utilities.

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I. **Mission Supporting Goals and Objectives**:

Facility operations provide for general purpose equipment purchases and for maintaining and upgrading National Renewable Energy Laboratory facilities to assure continuity of research and integrity of effort in the conduct of research and development projects for Solar and Renewable Resources Technology activities.

II. **Funding Schedule**:

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Facility Maintenance	$ 3,213	$ 500	$ 2,200	$ 1,700	+340
Construction	2,750	1,500	2,800	1,300	+ 87
Total, National Renewable Energy Laboratory	$ 5,963	$ 2,000	$ 5,000	$ 3,000	+150

III. **Performance Summary**: NATIONAL RENEWABLE ENERGY LABORATORY

FY 1995 Accomplishments:

- FACILITY MAINTENANCE ($3,213)

  Developed the conceptual and detailed designs for the construction of a Shipping and Receiving facility at NREL's South Table Mountain (STM) site to free up high bay space in the Field Test Laboratory Building (FTLB) for expanded pilot plant research. Issued construction package for bidding purposes, received and evaluated bids, and made selection of construction subcontractor.

- Developed the detailed design for the construction of the Thermal Test Facility at NREL's South Table Mountain site to provide state-of-the-art facilities for the testing of building energy systems and materials. Issued construction package for bidding purposes, received and evaluated bids, and made selection of construction subcontractor.

III. **Performance Summary**: NATIONAL RENEWABLE ENERGY LABORATORY (Cont'd)

- Completed construction of the Outdoor Test Facility for the research, demonstration, and testing of photovoltaic cells.

- Completed construction conversion of the unfinished basement in the Solar Energy Research Facility (SERF) into an electron microscopy suite.

- Completed the construction and start-up of the NREL Site Entrance Building at the STM site for the purpose of controlling access to the site.

- Completed the conceptual and detailed designs for the Industrial User Facility at the NREL National Wind Technology Center (NWTC) site for the purpose of providing a user test facility for wind turbines and blades. Issued the request for bids, evaluated bids, and awarded the construction contract.

- Developed the conceptual design for a facility to be located at NREL's mesa top to provide a user support building to house permanent restrooms, conference facilities, storage and telemetry.

- Replaced obsolete equipment at NREL for: testing and calibration of laboratory scientific instrumentation; administrative computer servers; copiers; security system; visuals development; transmission electron microscope data acquisition system and scientific computing equipment.

- CONSTRUCTION ($2,750)

  Developed the conceptual and detailed designs for the construction of the Infrastructure Improvements Project - Phase I at NREL's South Table Mountain (STM) site provides utility and circulation upgrades to support NREL site construction. Scope of construction includes extending and connecting power and telecommunications systems to existing primary distributions systems; extending fire and potable water, natural gas, sewer, and hot and chilled water system lines; and upgrading roadways, parking, walkways, lighting, and landscaping. Issued landscaping portion for bids, awarded contract, and began construction. Issued central plant portion for bids and awarded construction contract.

FY 1996 Accomplishments (to date and planned):

- FACILITY MAINTENANCE ($500)

  Provide general repair, retrofit, and maintenance of utilities, roadways and communications systems at NREL.

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III. Performance Summary: NATIONAL RENEWABLE ENERGY LABORATORY (Cont'd)

Replace outmoded leased telephone PBX switch at the National Wind Technology Center to accommodate growth at user facility. Provide portable manlift for access to overhead HVAC, electrical, piping, fire protection systems, and research apparatus for Field Test Laboratory Building (FTLB) and Biotechnology Research Facility (BTRF). Add servers to provide additional computer capacity for financial and administrative systems.

- CONSTRUCTION ($1,500)

Renovate NREL's Field Test Laboratory Building at the South Table Mountain site. Scope of work includes upgrading the laboratory exhaust system and converting non-laboratory space into laboratories and research support space.

FY 1997 Planned Accomplishments:

- GENERAL PURPOSE PROJECTS ($2,200)

NREL INFRASTRUCTURE - These projects provide unplanned general repair, retrofit, and maintenance for utilities, roadways, and communications systems at the National Wind Technology Center and the South Table Mountain sites.

- ASYNCHRONOUS TRANSFER MODE (ATM) SWITCHES - Obtain and install computer switches to replace outmoded, rented equipment. This new capability will provide high speed switched transfer of data and graphics information, currently transferred using local area network (LAN) and wide area network (WAN) bandwidth.

PROJECT INFORMATION SERVER - Install a high capacity UNIX server that will make project management information such as costing data, funding, procurement status, and work order available on-line and in organized formats for use by program managers.

ADMINISTRATIVE AND OTHER EQUIPMENT - Replace and update administration copiers and tools such as contour vertical bandsaw that is inadequate and badly worn, unable to handle increase in work load.

- CONSTRUCTION ($2,800)

FIELD TEST LABORATORY BUILDING (FTLB) EXPANSION, PHASE II - This project is the continuation of the previously approved Line Item Construction Project No. 96-E-100, funded in FY 1996 for $1.5M and is Phase II of a three phase project. This phase of the project will renovate and expand the laboratory and support spaces required for ongoing and evolving activities including those done in collaboration with

III. **Performance Summary**: NATIONAL RENEWABLE ENERGY LABORATORY (Cont'd)

industrial partners.

Explanation of Funding Changes FY 1996 to FY 1997

The increase of $ 1,700,000 in Facility Maintenance is required to upgrade existing space in order to provide adequate support for the existing facilities and associated research programs. This includes an increase of $220,000 in Capital Equipment required for computer and copier equipment to keep pace with technology changes and to replace older equipment that has become too expensive to repair and maintain.

The increase of $ 1,300,000 in Construction will be from $1,500,000 in FY96 to $2,800,000. The $2,800,000 is to fund only Phase II of the continuation of the FY 1996 Line Item Construction Project No. 96-E-100. This will upgrade the existing space in the Field Test Laboratory Building in order to provide state-of-the-art laboratory and support space for research activities.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars).

Solar and Renewable Resource Technologies

1.	Title and location of project:		2a.	Project No. 96E100
	FTLB Renovation and Expansion National Renewable Energy Laboratory Golden, Colorado		2b.	Construction Funded
3a.	Date A/E work initiated:	2nd Qtr., FY 1996	5.	Previous Cost Estimate: TEC $5,500 TPC $5,800
3b.	A/E Work (Titles I and II) Duration:	32 Months		
4a.	Date physical construction starts:	1st Qtr., FY 1997	6.	Current cost estimate:
4.	Date Construction ends:	1st Qtr., FY 2000		TEC $6,500 TPC $6,950

7. Financial schedule of construction project funding:

Fiscal Year	Appropriations	Obligations	Costs
1996	1,500	1,500	130
1997	2,800	2,800	1,570
1998	2,200	2,200	2,800
1999	0	0	2,000
2000	0	0	0

1188

1.	Title and Location of Project:	2a.	Project No: 96E100
	FTLB Renovation and Expansion National Renewable Energy Laboratory Golden, Colorado	2b.	Construction Funded

8. Brief Physical Description of Project

The Field Test Laboratory Building (FTLB) expansion and renovation is a modification to an existing facility that will be accomplished in three phases. The facility is located on the existing Department of Energy 121.4 hectares (300 acre) site near Golden, Colorado. A new building addition will be added on approximately 0.2 hectares (1/2 acre) to the west of the existing FTLB site. Landscaping will be natural with minimal improved area adjacent to the building entrance.

The first phase of the project is to improved the building infrastructure. This work consists of renovation/upgrade of the laboratory ventilation and electrical power systems and a conversion of high bay space into functional laboratory. The equipment installation will increase the plant's heating capacity by 100% and the cooling capacity by 80% as well as providing 100% safety redundancy in the three laboratory ventilation systems. 232 square meters (2,500 square feet) of high bay area will be converted into two levels for use as fully functional wet laboratory space. The increase in capacity is required to support research and support functions currently performed in expensive leased space.

The second phase of the project is the design and construction of a two story building addition. The addition will consist of support space of approximately 1,227 square meters (13,200 sf). The building addition will be constructed as a B-2 occupancy in accordance with the Uniform Building Code. The expansion will be connected to the existing FTLB to utilize common utilities and allow for easy access between new and existing laboratories and support spaces.

The third phase is the design and construction of 278 square meters (3,000 square feet) building addition for high bay research laboratories. This converted space will be provided with laboratory exhaust ventilation, as well as mechanical and electrical utilities to support the research activities related to conversion of renewable energy resources to higher value fuels and chemicals. This laboratory space will be used to replace expensive leased spaces.

All phases of the project will be fully equipped with automatic fire sprinklers and alarmed for both fire and security. Ventilation systems appropriate for the types of research to be conducted will be provided.

Work performed in FY1996 includes Title I and Title II design, project management, and the initiation of physical construction.

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1.	Title and Location of Project:	2a.	Project No: 96E100
	FTLB Renovation and Expansion National Renewable Energy Laboratory Golden, Colorado	2b.	Construction Funded

9. Purpose, Justification of Need and Scope of Project:

The renovation of laboratory space and addition of support space will enable NREL to maximize the use of the FTLB for general renewables research and development. Completion of this project will reduce operating costs and eliminate the need for third-party participants. This facility will be designed to house process development unit (PDU) size experiments. As these technologies move from the bench scale, it is necessary to develop the overall process concept at the PDU level to verify the economic assessments to attract industry support. This project will provide laboratory space and test facilities for conducting internationally recognized research by NREL researchers, as well as through Cooperative Research and Development Agreements (CRADA) with industry. A $6.5 million total CRADA with Allied Signal is currently in place. This is the first of a series of processes to recover chemical value from mixtures of wastes that NREL is addressing.

In order for industrial partners to be able to work directly with NREL in Cooperative Research and Development Agreements, construction of the new laboratory space is needed. This also will allow NREL to eliminate any need for third party participation and will result in more cost effective research and development for the industries.

Space allocation for the renovation and expansion will include 855 square meters (9,200 sf) for high bay laboratories, 232 square meters (2,500 sf) for an experimental staging area, and 1,050 square meters (11,300 sf) of support space. This space includes new and renovated space to support expansion of the Biofuels, Biomass power and Industrial Technologies Programs (waste conversion and industrial processes).

The research requirements for thermal conversion technology require high bay research facilities equipped with industrial exhaust ventilation in order to safely conduct experiments on conversion of renewable resources to fuels. Currently, this type of research has been conducted in only one laboratory at the National Renewable Energy Laboratory (NREL) due to the limited high bay space available in current facilities. This project will allow the more efficient use of available high bay space by converting an area formerly used for administrative purposes to high bay laboratory space. The new space will provide the necessary facilities to attract and support cooperative research efforts with industrial partners.

The ventilation upgrades provided by this project are required to provide heating and cooling to the new and converted laboratory and support spaces. This work will also provide for ventilation redundancy required for safe operation of laboratory equipment.

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1. Title and Location of Project:

FTLB Renovation and Expansion
National Renewable Energy Laboratory
Golden, Colorado

2a. Project No: 96E100

2b. Construction Funded

10. Details of Cost Estimate:

	Unit Cost	Item Cost	Total Cost
a. Design and Management Costs			$ 800
1. Engineering design and inspection at approximately 12% of construction costs (item c)		$ 600	
(a) Title I & Title II Design	$ 318		
(b) Title IIA & Title IIB	242		
(c) Inspection & Testing Laboratory Services	40		
2. Construction Management Costs		0	
3. Project Management at approximately 4% of construction costs (item c)		200	
b. Land and land rights			0
c. Construction Costs*			4,997
1. Improvements to land**		35	
2. Buildings - approx. 2,138 gsm @ $2,227/gsm (23,000 gsf @ $207 gsf)***		4,761	
3. Other structures		0	
4. Utilities		0	
5. Special Facilities****		201	
d. Standard Equipment			0
e. Major computer items			0
f. Removal cost less salvage			0
g. Design and project liaison, testing, checkout and acceptance			0
Subtotal			5,797
h. Contingencies at approximately 14% of item c			703
i. Total line item cost			6,500
j. Non-Federal contribution			0
k. Net Federal total estimated cost (TEC)			$ 6,500

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1. Title and Location of Project:

FTLB Renovation and Expansion
National Renewable Energy Laboratory
Golden, Colorado

2a. Project No: 96E100

2b. Construction Funded

10. Details of Cost Estimate (continued):

* Based on preliminary cost estimate escalated to the midpoint of construction
** Includes costs for modifying the roadway
*** Average per gsm/gsf costs; project encompasses both renovation of existing space and addition of new space
**** Includes laboratory casework

11. Method of Performance

Design and inspection services will be accomplished by fixed price contract(s) with an Architect Engineering firm with additional effort by operating contractor and government employees. Construction and procurement will be by fixed price contract(s) awarded on the basis of competitive bids.

12. Schedule of Project Funding and Other Related Funding Requirements:

	Prior Years	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total
a. Total project costs							
1. Total facility costs							
(a) Line Item (Section 10)	$ 0	$130	$1,570	2,800	2,000	0	$6,500
(b) Oper. Exp. funded equipment	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0
Total facility cost	0	$130	$1,570	2,800	2,000	0	$6,500
2. Other project costs							
(a) R&D necessary to complete construction project	$ 0	$ 0	$ 0	0	0	0	$ 0
(b) Conceptual design costs	280	20	0	0	0	0	300
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0	0
(d) NEPA Documentation Costs	0	0	0	0	0	0	0

1192

1. Title and Location of Project:

FTLB Renovation and Expansion
National Renewable Energy Laboratory
Golden, Colorado

2a. Project No: 96E100

2b. Construction Funded

12. Schedule of Project Funding and Other Related Funding Requirements (continued):

	Prior Yr	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total
(e) Other related-project costs	0	0	0	0	0	0	0
Total other project costs	0	0	0	50	50	50	150
Total project cost	280	150	1,570	2,850	2,050	50	6,950
(f) Non-Federal contribution	0	0	0	0	0	0	0
(g) Total project cost (TPC)	280	150	1,570	2,850	2,050	50	6,950

b. Related annual funding (estimated life of project: 40 years)

1. Facility operating costs (FY 1994 $)	56
2. Facility maintenance and repair costs	37
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	200
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	62
7. Other costs	0
Total related annual funding	355

a. Total project funding

1. Total facility costs
   (a) Line Item: No narrative required.
   (b) Operating expense-funded equipment: None.
   (c) Inventories: None.

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1.	Title and Location of Project:	2a.	Project No: 96E100
	FTLB Renovation and Expansion National Renewable Energy Laboratory Golden, Colorado	2b.	Construction Funded

13. Narrative Explanation of Total Project Funding and Other Related Funding Requirements:

2. Other project costs
   (a) R&D necessary to complete construction: No other project funding required.
   (b) Conceptual design: No narrative required.
   (c) Decontamination and decommissioning (D&D): None
   (d) NEPA documentation costs: None.
   (e) Other project related costs: None.
   (f) Non-Federal Contributions: None.

b. Related annual funding
   1. Facility operating costs - Included are the salaries and expenses for the NREL Facilities organization and the cost of various subcontracted maintenance and operations activities, in addition to custodial services.
   2. Facility maintenance and repair costs - Include estimated maintenance and repair costs.
   3. Programmatic operating expenses directly related to the facility - None.
   4. Capital equipment not related to construction but related to the programmatic effort in the facility - Includes pyrolysis processing equipment.
   5. GPP or other construction related to the programmatic effort in the facility - None.
   6. Utility costs - Includes estimated annual utilities costs.
   7. Other costs - None.

14. Incorporation of fallout shelters in future federal buildings:

Executive Order 12656 and DOE Order 6430.1B do not specifically require the provision of fallout shelters. The FTLB does not contain dual-purpose space which could be easily and economically converted to fallout shelters. Therefore, no provisions for fallout shelters are included in this project.

1. Title and Location of Project:	2a. Project No: 96E100
FTLB Renovation and Expansion National Renewable Energy Laboratory Golden, Colorado	2b. Construction Funded

15. Federal compliance with pollution control standards:

The total estimated cost of the renovation and expansion of the FTLB includes the cost of measures necessary to assure compliance with Executive Order 12088. Sanitary waste will be discharged to an existing sewer system connected to adequate sewage facilities. Chemical and biological wastes will be collected in containers at the point of production and disposed of in accordance with applicable standards to ensure public safety. Airborne contaminants will be treated as required before being released.

16. Evaluation of flood hazard:

This project will be located in an area not subject to flooding determined in accordance with Executive Order 11988.

17. Compliance with the National Environmental Policy Act, floodplains/wetlands review requirements and other relatedenvironmental statutes:

The project is not located in a floodplain/wetland area. In accordance with environmental regulations, NEPA documentation will be supplied to the Golden Field Office. This project will comply with all Federal, State and local regulations and environmental statutes.

18. Accessibility for the handicapped:

This project will be designed to be accessible to the handicapped in accordance with the Architectural Barriers Act, Public Law 90-480, and the Americans With Disabilities Act. Implementation will be performed in accordance with the Federal Property Management Regulations 41 CFR 101-91.6.

19. Supplementary Project Data for Facility Utilization

This project will provide new space and capacity. Supplemental information is provided as an attachment.

20. Safe and Healthful Workplace:

The total estimated cost for the FTLB Renovation and Expansion includes amounts required to ensure that the facility will provide a safe and healthful workplace consistent with the standards of Section 19 of the Occupational Safety and Health Act of 1970, provisions of Executive Order 12196 and Safety and Health Provisions for Federal Employees of the Secretary of Labor listed in 29 CFR Chapter XVII, Part 1960.

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1. Title and Location of Project:	2a. Project No: 96E100
FTLB Renovation and Expansion National Renewable Energy Laboratory Golden, Colorado	2b. Construction Funded

21. Compliance with Energy Conservation Criteria

The total project cost includes the cost of complying with: (1) Title 10, Code of Federal Regulations, Part 435, Performance Standards for New Commercial and Multi-Family High Rise Residential buildings, of January 39, 1989, (2) DOE 6430.1B, General Design Criteria, which requires preparation and submission of energy conservation reports, and (3) Requirements for Private Sector Energy Expert review of design for new facilities larger than 929 square meters (10,000 square feet) as required by the Secretary of Energy's memorandum of November 12, 1991, inclusion of additional cost-effective energy efficient technologies, and Executive Order 12902.

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1. Title and Location of Project:

FTLB Renovation and Expansion
National Renewable Energy Laboratory
Golden, Colorado

2a. Project No: 96E100

2b. Construction Funded

Supplementary Project Data for Facility Utilization:

Site Wide Requirements/Assets for CATEGORY 70, GENERAL LABORATORIES

Other Projects Affecting this Category: None

UTILIZATION OF EXISTING ASSETS (FACILITIES) IN THIS CATEGORY:

a. Total requirement for this category:	18,261	SM (square meters)
	196,491	SF (square feet)
b. The total existing assets in this category:	16,886	SM
	181,701	SF
c. Less amount of existing, substandard assets:	763	SM
	8,210	SF
d. Equals amount of existing, adequate assets:	16,123	SM
	173,491	SF
e. Existing adequate assets, less total requirement for this category equals excess/(deficiency) of adequate assets:	(2,138)	SM
	(23,000)	SF

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1.	Title and Location of Project:	2a.	Project No: 96E100
	FTLB Renovation and Expansion National Renewable Energy Laboratory Golden, Colorado	2b.	Construction Funded

Supplementary Project Data for Facility Utilization: (continued)

CHANGES TO ASSET LEVELS RESULTING FROM THIS PROJECT:

f.	The additional assets created in this category by the project:	2,138 SM 23,000 SF
g.	Less, assets removed from this category through excessing, demolition, etc:	-0-
h.	Equals net increase/(decrease) of assets in this category due to the project:	2,138 SM 23,000 SF

PROJECTED ASSET STATUS AFTER COMPLETION OF THIS PROJECT:

i.	Existing excess of (deficiency) of adequate assets, plus this project's increases, equal excess of (deficiency) of adequate assets projected for this category:	-0-

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SOLAR AND RENEWABLE RESOURCE TECHNOLOGIES

PROGRAM DIRECTION - EE

I. Mission Supporting Goals/Ongoing Responsibilities:

A. Program Description

This program provides the staffing resources and associated funding to support the overall management of the Solar and Renewable Resource Technologies Program and enables the diverse array of solar and renewable programs to work more strategically and function integrally. This includes three principal components: (1) Headquarters Executive Management; (2) Headquarters Project Management; and (3) Program Implementation at the Golden Field Office and the Idaho Operations Office. These staff perform all project management activities, ranging from policy development and long-range planning to general administration. It includes functions such as: (1) preparation of technical research and development plans; (2) assessment of scientif' and technical needs and priorities, development and defense of budgets; (3) review, evaluation and fundin of research proposals; (4) monitoring evaluation and directing laboratory work and allocation of resources (5) oversight of university and industrial research programs; (6) control of interagency liaison and negotiations; (7) development of corporate goals, multiyear planning, corporate formulation of budget requests and presentation and explanation of those requests; (8) management and execution of corporate-level communications, information transfer and outreach to EE customers and stakeholders; and (9) the conduct, planning and reporting of policy analysis, program benefits assessment, performance measurement and program performance assessment. The program benefits estimates and performance measures cited throughout this budget request have been developed or facilitated through this function. In addition to providing the staffing resources, this account provides essential contract support for the operation of the Golden Field Office.

From the start of FY 1995 through the end of FY 1997, FTEs are projected to be reduced over 20 percent to support a down-sized organization being implemented in the Solar and Renewable Resource Technology Program Direction account. A total of 16 FTEs were reduced in FY 1995. This was a 10 percent reduction from FY 1994 (based on an End of Year (EOY) personnel strength of 164 FTEs in FY 1994 to an EOY personnel strength of 148 FTEs in FY 1995). From the end of FY 1995 thorough the end of FY 1997, FTEs will be reduced an additional 19 FTEs. The new organization accomplishes DOE Strategic Alignment goals and helps enhance streamlining activities consistent with the Government Performance and Results Act. For example, layers of management and third-tier organizations will no longer be necessary and the supervisory span of control will be increased.

B. Estimates of Benefits

The products and services provided by the Program Direction function enable the Solar and Renewable Resource programs to meet their mission more effectively. As such, many of the benefits are those of strategic management and integration, reduced duplication and redundancy which cannot be described quantitatively.

I. Mission Supporting Goals/Ongoing Responsibilities: PROGRAM DIRECTION - EE (Cont'd)

C. Performance Goals

Key FY 1995 accomplishments are:

- See detailed accomplishments in Section III.

Key FY 1996 performance indicators are:

- Meet the Secretary's Critical Success Factor commitments for FY96, particularly focusing on human resources, customers, management, leadership and measurement.
- Develop a portfolio management system based upon strategic criteria and measures.
- Simplify and integrate budget development, presentation and information management.
- Develop the Solar and Renewable Resource plan for Government Performance and Results Act of 1993 requirements.
- Coordinate Solar and Renewable Resource needs, cross-cut activities and RE integration with other DOE and external programs.

Key FY 1997 performance indicators are:

- Meet or exceed the Secretary's Critical Success factor commitments for FY97, particularly focusing on human resources, customers, management, leadership and measurement.
- Improve the integration and corporate utility of the portfolio management system.
- Initiate the Solar and Renewable Resource plan for Government Performance and Results Act of 1993.
- Coordinate Solar and Renewable Resource needs, cross-cut activities and RE integration with other DOE and external programs.
- Detailed accomplishments are provided in the Performance Summary Section.

1998-2000 Performance Measures

- Revise the EE Strategic Plan for renewable energy programs based on market and technology changes.
- Refine the Strategic Principles planning process to facilitate consistent planning and decision-making across programs and sectors.
- Achieve a customer service rating of good to excellent from 90% of EE customers.
- Use comprehensive, state-of-the-art benefits estimates and performance measures to make effective ongoing decisions and resource allocations.
- Implement the Government Performance and Results Act.
- A resource summary for FY 1995 through FY 1997 follows:

II. Funding Table: PROGRAM DIRECTION - EE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
GOLDEN FIELD OFFICE					
Salary and Benefits	1,664		+ 1,795	1,795	1,450
Travel	332		+ 300	300	225
Support Services	0		0	0	0
Other Related Expenses	1,057		+ 747	747	1,000
Total	$3,053		+ $2,842	$2,842	$ 2,675
Full Time Equivalents	22		22	22	16
Average	$ 139		+ $ 129	$ 129	$ 167
IDAHO OPERATIONS OFFICE					
Salary and Benefits	132		+ 138	138	144
Travel	9		+ 10	10	11
Support Services	0		0	0	0
Other Related Expenses	0		0	0	0
Total	$ 141		+ $ 148	$ 148	$ 155
Full Time Equivalents	2		2	2	2
Average	$ 71		+ $ 74	$ 74	$ 78
HEADQUARTERS					
Salary and Benefits	10,048		+ 9,798	9,798	10,545
Travel	505		+ 480	480	445
Support Services	890		0	0	0
Other Related Expenses	3,155		+ 2,517	2,517	3,481
Total	$14,598		+$12,795	$12,795	$14,471
Full Time Equivalents	124		118	118	111
Average	$ 118		+$ 108	$ 108	$ 130
TOTAL PROGRAM DIRECTION					
Salary and Benefits	11,844		+ 11,731	11,731	12,139
Travel	846		+ 790	790	681
Support Services	890		0	0	0
Other Related Expenses	4,212		+ 3,266	3,266	4,481
Total	$17,792		+$15,785	$15,785	$17,301
Full Time Equivalents	148		142	142	129
Average	$120		+$ 111	$ 111	$ 134
Adjustment	0		-$ 1,810	-$ 1,810	0
Budget Authority	$17,792		+$13,975	$13,975	$17,301

1201

III. Performance Summary: PROGRAM DIRECTION - EE

FY 1995 Accomplishments:

- Supported 148 FTEs including 124 FTEs at Headquarters and 24 FTEs and in the Field to plan and implement the Solar and Renewable Resource Technologies Programs.

- Provided essential contractual services to support the operation of the Golden Field Office and analytical, professional, and administrative services for all Solar and Renewable Programs.

- Included $2,485,000 for the Working Capital Fund for administrative activities such as rent, automated office support, contract close out, contract audits, SES awards, telephone services, postage, printing, graphics, and similar services previously included in the Departmental Administration account.

- Implemented a major realignment effort using the Department's five step process: Functional analysis, requirements analysis, process re-engineering, cost analysis, and structural analysis. This process identified savings in FTE usage and a better organizational design structure to be used as a potential model for other EE sectors. As a result, 16 Ftes were reduced in FY 1995, or 10 percent of the staff.

- Developed a DOE Pilot Program to improve and/or replace administrative processes in recruitment and staffing actions. This program created the EE/HR Centralized Personnel Actions Team comprised of EE and Human Resources (HR) specialists on-site with EE staff to provide effective and expedited personnel action assistance in the EE organization. To date, personnel actions have been reduced by over 50 percent.

- Developed a program to assist employees in preparing themselves for the strategic alignment implementation and possible career outplacement. Workshops (such as Managing Change and Transition, Career Assessment, and Mastering Your Career) focus on providing tangible, usable products, such as skills inventories and resumes. These workshops assist employees who are seeking jobs in the private sector and provide them with a better understanding of their strengths, skill needs, and capabilities.

- Established the EE Customer Service Center, which offers local and "800" numbers for immediate access to EE staff and information. Callers receive immediate response to inquiries and are provided informational materials and offered follow-up services, such as meetings with appropriate technical experts. In no case is a caller required to make more than that first phone call.

- Developed Strategic Principles planning process that allows criteria-based decision-making.

- Developed an EE-wide customer service plan to facilitate the transition to a world-class customer service organization.

- Developed a comprehensive set of estimates of benefits and performance measures for Energy and Water Development programs.

- Provided corporate-level management of the renewable energy deployment initiatives in the Administration's Climate Change Action Plan.

III. Performance Summary: PROGRAM DIRECTION - EE (Cont'd)

- Participated as one of the Government Performance and Results Act-National Performance Review Reinvention Lab pilots.

FY 1996 Accomplishments (to date and planned):

- Supported 142 FTEs including 118 FTEs at Headquarters and 24 FTEs in the Field to plan and implement the Solar and Renewable Resource Technologies Programs.

- Provided essential contractual services for the operation of the Golden Field Office and analytical, professional, and administrative services for all Solar and Renewable Resource Technologies Programs.

- Included $2,517,000 for the Working Capital Fund for administrative activities.

- Established a Logistics Services Improvement Team to identify opportunities for organizational and process improvements. The team identified approximately 60 services provided by EE staff in coordination with HR, including office space relocations, small purchases, badging and new employee orientation, time and attendance administration, conference management, etc. The Logistics Services Improvement Team recommended, and EE established, a centralized and Local Area Network (LAN) based Employee Logistics Service Center as a single point of contact for information and assistance for the full range of EE staff logistics-related actions.

- Developed, with DOE's National Treasury Employees Union (NTEU) Chapter, the Department's Pilot Telecommuting Partnership. The Pilot program provides EE data to identify additional opportunities for job-sharing and similar initiatives. EE and the Office of the Executive Secretariat have teamed to develop the Department's Pilot Document On-Line Coordination System (DOCS) to improve processes for executive document preparation and control. The Pilot program fully automates, simplifies, and expedites the current paper-intensive system for responding to and initiating executive correspondence.

- De-layer Project Management. Identified which projects should be transferred to the field offices and which should remain at HQ. Also improved the balance between program and project management skills which yielded higher quality project management with a flatter organization.

- Reviewed the ability to train clerical staff who provide support in such areas as graphics, conference planning, customer service, and database operation and converted them to administrative assistants who can perform secretarial duties as well.

- Provided real time access, full E-mail access across all DOE Solar and Renewable programs, and full internet access for "chat" mode operation from both office and remote computers as well as training on efficiencies that can be gained by additional electronic communication.

- Applied the Strategic Principles criteria-based planning process to FY 1997 budget decision-making to develop an efficient and balanced FY 1997 budget request.

III. Performance Summary: PROGRAM DIRECTION - EE (Cont'd)

- Effectively communicated budget priorities and information to Congress and responded in a timely fashion to Congressional inquiries.
- Began to implement an EE-wide customer service plan to facilitate the transition to a world-class customer service organization.
- Developed a comprehensive set of peer-reviewed estimates of benefits for all Energy and Water Development program planning units and a comprehensive set of performance measures across all EWD programs.
- Reported Government Performance and Results Act-National Performance Review Reinvention Lab pilot 2 year results.

FY 1997 Planned Accomplishments:

- Supports a total of 129 FTEs including 111 FTEs at Headquarters and 18 FTEs in the Field to plan and implement the Solar and Renewable Resource Technologies Programs.
- Provides essential contractual services for the operation of the Golden Field Office and analytical, professional, and administrative services for all solar and Renewable Energy Programs.
- A total of $2,881,000 is requested for the Working Capital Fund (WCF) to provide for activities such as rent, automated office support, contract close out, contract audits, SES awards, telephone services, postage, printing, graphics, and similar services previously included in Departmental Administration.
- The Working Capital Fund will permit the costs of administrative services, which are common to all recipient organizations, to be charged directly to those organizations. The Fund offers a variety of benefits. For example, it will enhance the potential for reducing administrative costs by permitting managers to reduce the consumption and costs for goods and services previously perceived as "free", it will promote more efficient allocation of goods and services, and it will permit the Solar and Renewable Resource programs to move toward implementing the "fully loaded cost" estimation sought by the Conference Managers in the FY 1996 Energy and Water Appropriations Report.
- Develop a new Strategic Plan for renewable energy programs based on customer input.
- Refine the Strategic Principles planning process to perform scenario-based portfolio analysis and decision-making to ensure maximum returns under fiscal constraints.
- Improve the budget presentation process that continues to effectively communicate priorities and information and respond promptly to Congress.
- Achieve a customer service rating of good to excellent from a majority of EE customers.

III. Performance Summary: PROGRAM DIRECTION - EE (Cont'd)

- Develop a comprehensive, integrated, peer reviewed, state-of-the-art system of estimates of benefits and performance measures across all solar and renewable energy programs.

- Apply the lessons learned from participation in the Government Performance and Results Act-National Performance Review Reinvention Lab pilot to RE GPRA requirements.

IV. Explanation of Funding Changes FY 1996 to FY 1997

The FY 1997 increase of $3,326,000 in Program Direction does not include unobligated carryover funds of $1,810,000 available in FY 1996. Specifically, total FY 1996 funding for Program Direction is $15,785,000 including $11,458,000 (FY 1996 new BA), plus $1,810,000 from FY 1995 unobligated carryover funds, and $2,517,000 for the Working Capital Fund. Therefore the actual change from FY 1996 to FY 1997 is $1,516,000.

The $1,516,000 includes the net effect of: (a) an increase of $408,000 for Federal employee pay raise and buyouts; (b) a reduction of $109,000 for travel; (c) an increase of $853,000 for analytical studies to support the development of performance measurement data for the Solar and Renewable Resource Technologies programs; and (d) and an increase of $364,000 for administrative services provided from the Working Capital Fund.

V. Explanation of Average FTE Costs:

Overall Program Direction:
Average FTE costs for all Solar and Renewable Resource Technologies Program Direction are: $120,000 in FY 1995, $111,000 in FY 1996, and $134,000 in FY 1997. The lower average FTE costs in FY 1996 reflect reductions in Other Related Expenses for contractual services primarily for the development of performance measurement data for the Solar and Renewable Resource Technologies programs. An explanation of the average FTE costs for each field component and Headquarters follows.

Golden Field Office:
Average FTE costs of $139,000 in FY 1995 are reduced to $129,000 in FY 1996. This is primarily the result of the Federal employee pay raise in FY 1996 and reductions in contractual services for the operation of the Golden Field Office. Average FTE costs of $167,000 in FY 1997 reflect small increases for Federal employee pay raise and the full annual costs for contractual services for the operation of the Golden Field Office.

Idaho Operations Office:
Average FTE costs include nominal increases in FY 1996 and FY 1997 for the Federal employee pay raise.

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V. Explanation of Average FTE Costs: PROGRAM DIRECTION - EE (Cont'd)

Headquarters:
Average FTE costs are $118,000 in FY 1995 and are reduced to $108,000 in FY 1996. The reduction reflects the Federal employee pay raise in FY 1996 and reductions in Federal travel and contractual services. Contractual services in FY 1996 are limited to $2,517,000 for the Working Capital Fund. Average FTE costs of $130,000 in FY 1997 reflect small increases for Federal employee pay raise and an increase of $964,000 for Other Related Expenses to support (a) the Working Capital Fund which increases by $364,000 (from $2,517,000 in FY 1996 to $2,881,000 in FY 1997); and (b) an increase of $600,000 to support the development of performance measurement data for the Solar and Renewable Resource Technologies programs.

IN-HOUSE ENERGY MANAGEMENT

PROGRAM MISSION

I.A. Statement of Mission

The In-House Energy Management (IHEM) Program, under the direction of the Federal Energy Management Program, provides the necessary resources and services to reduce energy and water consumption, improve energy efficiency, and reduce utility costs throughout the Department's facilities and operations. This is primarily accomplished through the implementation of retrofit projects and modifications which save energy or water, and have a high return on investment. IHEM provides additional direct support for DOE Energy Cost Savings through training, energy awareness, new building design reviews, and policy guidance.

Projects that are identified compete for funding on a DOE-wide basis, and are selected to maximize the economic return, while reducing environmental pollution and supporting the established goals of the Department's Strategic Plan. Project development activities include energy and water conservation surveys, specific energy projects or central plant feasibility studies, and funding to ensure energy conservation projects are put in place. Many of the proposed projects are accomplished through leveraging with non-federal resources, such as utility rebates and private-sector financing. The program has a return on investment of approximately 25 percent, and has been identified as part of the President's Investment Program for Federal Facility Energy Efficiency since FY 1994. The net return on each $1 invested at DOE facilities for energy efficiency is approximately $5 in direct energy and/or water savings, not including environmental and other benefits.

IHEM's leadership in these areas extends beyond the Department and is a model for other Federal Agencies as exhibited by the Department's reduction in energy consumption in buildings by 24 percent since FY 1985, already achieving the FY 2000 goal of the Energy Policy Act of 1992. However, more can be accomplished in energy efficiency, and will need to be to reduce unnecessary costs in support of the President's balanced budget and to meet the Energy Policy Act requirement of implementing all projects with less than a 10 year payback period and the Executive Order goal of a 30 percent reduction by FY 2005.

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I.B. Program Benefits

The benefits of the In-House Energy Management Program have been projected based on maintaining the rate of reduction in energy consumption experienced over the past ten years and accomplishing the Department of Energy's goals and objectives as required by the Energy Policy Act of 1992 and Executive Order 12902, as stated in I.C., in the years 2000 and 2005, in the objectives section below of the program overview. These projected benefits result directly from effectively managing the Department's energy utilization in buildings and energy intensive operations. Savings projected include anticipated savings from upgrading and retrofitting of existing facilities, as well as the impacts of increased purchasing and utilization of high efficiency energy consuming products under the Federal Procurement Challenge. Achieving these savings is dependent upon a steady investment in the funding of energy efficiency projects at Department of Energy facilities nation-wide. Additional benefits of energy management, although not currently projected, will accrue as well, including increased worker productivity and improved health and safety conditions.

IHEM Quality Metrics Based Benefits

Metric*(Annual savings achieved in year)	2000	2010	2020
Total Primary Energy Displaced (Quads)	.005	.0176	.0329
Total Cost Savings in Year** (1995/$-Billions)	.0325	.1253	.2538
Carbon Equivalent Savings (MMTCE)***	.111	.381	.710

*Note: Energy cost savings of IHEM Program from FY 1997 forward will be a cumulative $74.1 million in 2000, $855.1 million in 2010, and $2.8 billion in 2020.
**Actual Federal deficit reduction potential is dependent upon the mix of financing used to achieve the savings. The higher the proportion of private sector funding utilized (ESPCs), the lower the potential deficit reduction due to added cost of funds acquisition.
***Does not include enhanced carbon reductions of 1 MMTCE in 2000, 1.3 MMTCE in 2010, and 1.6 MMTCE in 2020 due to a steam plant conversion demonstration.

PROGRAM MISSION - IN-HOUSE ENERGY MANAGEMENT (Cont'd)

I.C. Objectives of the IHEM Program are to demonstrate leadership as a model for energy management within the Federal Government by:

1. Implementing energy and water conservation cost saving projects at DOE sites consistent with the requirements of Energy Policy Act of 1992 (EPAct), Public Law 102-486; the National Energy Conservation Policy Act (NECPA), Public Law 95-619; and Executive Order 12902. Specifically, this includes the following:

a. EPACT requires agencies by the year 2000 to reduce energy consumption in federal facilities by 20% compared to 1985, based on BTU usage per square foot, while Executive order 12902 adds an additional goal of reducing energy consumption by 30% by the year 2005.

b. EPACT also requires agencies by 2005 to install, to maximum extent practicable, all energy and water conservation measures with payback periods of less than ten years.

c. Executive Order 12902 includes agency requirements for: increasing energy efficiency in industrial facilities by 20 percent by FY 2005; conducting comprehensive facility audits of 10 percent of its facilities each year; increasing the use of solar and renewable energy sources; reducing the use of petroleum; and constructing new facilities to meet or exceed energy performance standards.

2. Demonstrating at DOE sites new or emerging state-of-the-art energy or water saving technologies which improve energy efficiency and reduce operating costs.

3. Initiating a program with other DOE organizations using energy savings performance contracting that achieves an integrated approach for replacement of chillers including other cooling-load reduction measures and supporting the regulatory phase-out of chlorofluorocarbons.

4. Increasing the use of energy savings performance contracts, and specifically to implement the National Performance Review initiative to save utility costs by replacing the Department's aging steam plants through private sector investment.

5. Annually reducing the Department's energy consumption and costs for utilities through the accomplishment of the aforementioned objectives.

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PROGRAM MISSION - IN-HOUSE ENERGY MANAGEMENT (Cont'd)

I.D. Performance Measures

The following performance measures will be used by the IHEM Program to track its commitments to meeting its 2005 goal of reducing energy consumption by 30%:

1996 Performance Measures:
-- Complete 1 Energy Savings Performance Contract at a Departmental facility.

1997 Performance Measures:
-- Conduct comprehensive facility audits on at least 10% of Departmental facilities.
-- Reduce annual buildings energy consumption per square foot by at least 1%.
-- Initiate at least 2 additional successful Energy Savings Performance Contracts.

1998-1999 Performance Measures:
-- Reduce DOE utility costs by greater than $5 million per year.
-- Reduce annual buildings energy consumption per square foot by at least 1%.
-- Demonstrate one new or emerging technology.

2000 Performance Measures:
-- Reduce DOE energy consumption by 25% by FY 2000.
-- Reduce annual DOE utility costs by greater than $5 million.
-- Reduce annual buildings energy consumption per square foot by at least 1%.

Significant Accomplishments in 1995 and Program Shifts:

-- 23.2 percent reduction in DOE buildings energy consumption per square foot as compared to FY 1985 resulting from cumulative efforts, already achieving the FY 2000 goal of the Energy Policy Act and continuing toward the FY 2005 goal of Executive Order 12902.

-- 45.8 percent reduction in metered process energy consumption per square foot as compared to FY 1985 resulting from cumulative efforts.

-- Reduction in the Department's annual utility costs by greater than $180 million as compared to FY 1985.

-- The IHEM Program is increasing reliance on leveraging its resources with both private sector funding, including utility rebates and energy savings performance contracts.

IN-HOUSE ENERGY MANAGEMENT

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Orginial Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Sub-program					
INEM Facilities Operations	$ 30,632	$ 0	$ 342	$ 342	$ 5,700
Total, In-House Energy Management	$ 30,632	$ 0	$ 342	$ 342	$ 5,700

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IN-HOUSE ENERGY MANAGEMENT

IHEM FACILITIES OPERATIONS

I. **Mission Supporting Goals and Objectives**:

The goal of the In-House Energy Management (IHEM) Program is to reduce consumption and utility costs for the Department of Energy's (DOE) facilities. IHEM Facilities Operations is to ensure the funding of retrofit projects and modifications that are identified as part of IHEM Program Operations. Projects which are identified compete for financing support on a DOE-wide basis and are selected to maximize the DOE's economic return. Continuation of an annual program of quick payback retrofit projects for the DOE's facilities reduces outyear utility costs, provides a return on investment of 25 percent, and will meet goals set by legislation. IHEM Program Operations is structured to provide on-site training for improved operation of central plants, and survey and study facilities, utilities and processes owned by the DOE, in order to support the implementation of retrofit projects and modifications which save energy and have a high return on investment.

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II. **Funding Schedule**:

Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Conservation Projects					
Integrated Chiller Retrofit	$ 0	$ 0	$ 0	$ 0	0
Other Conservation Projects	24,700	0	1,759	1,759	>999
Subtotal, Conservation Projects	$ 24,700	$ 0	$ 1,759	$ 1,759	>999
IHEM Program Operations					
Surveys, Studies, and Operator Training	$ 5,349	$ 0	$ 3,500	$ 3,500	>999
Subtotal, IHEM Program Operations	$ 5,349	$ 0	$ 3,500	$ 3,500	>999
Total, IHEM Facilities Operations	$ 30,049	$ 0	$ 5,259	$ 5,259	>999

III. **Performance Summary**: IHEM FACILITIES OPERATIONS

FY 1995 Accomplishments:

- Other Conservation Projects ($24,700)

  65 retrofit/construction projects funded in FY 1995, totaling over $24 million in construction funding.

  Projects funded and scheduled for completion within two years, will save over 500 billion Btu's and over $6 million in utility costs annually.

  23.2 percent reduction in DOE buildings energy consumption per square foot as compared to FY 1985, already achieving FY 2000 requirement of EPACT.

  45.8 percent reduction in metered process energy consumption as compared to FY 1985.

  Reduction in the Department's annual utility costs by greater than $180 million as compared to FY 1985.

- Surveys, Studies, and Operator Training ($5,349)

  Approximately 85 facility surveys and studies were funded. These surveys and studies represent over 20 million square feet and over 15 percent of the facility square footage in DOE, meeting the 10 percent requirement of Executive Order 12902. These efforts identify future retrofit projects and no- or low-cost opportunities to reduce energy and water consumption.

  Approximately 25 central plant operators were trained, and over $100,000 in energy conservation savings were identified during the training at the sites.

  IHEM hosted one DOE energy coordinator's conference to address pertinent issues such as the phase-out of chlorofluorocarbons (CFCs) and coordinated the implementation of cost saving energy projects.

FY 1996 Accomplishments (to date and planned):

- Other Conservation Projects ($0)

  Will be accomplished through private sector financing using energy savings performance contracting and utility incentives to reduce operating and utility costs.

  Planning on working towards completion of all retrofit projects that have been previously funded.

III. Performance Summary: IHEM FACILITIES OPERATIONS (Cont'd)

Planning on completing 1 Energy Savings Performance Contract at a departmental facility.

- Surveys, Studies, and Operator Training ($0)

Planning on working towards completion of all studies that have been previously funded.

FY 1997 Planned Accomplishments:

- Other Conservation Projects ($1,759)

Only retrofit/construction projects that do not qualify for private sector financing will be funded solely by appropriated funds in FY 1997.

The majority of projects that will be accomplished will be funded through private sector financing using energy savings performance contracting and utility incentives.

- Surveys, Studies, and Operator Training ($3,500)

Planning to initiate at least 2 Energy Savings Performance Contracts.

Planning to survey approximately an additional 10 percent or 15 million square feet of DOE facilities for energy and water cost savings to meet the requirements of Executive Order 12902.

Planning to reduce annual buildings energy consumption per square foot by at least 1%.

Explanation of Funding Changes FY 1996 to FY 1997

The net change of $ 0 in Integrated Chiller Retrofit will eliminate initiation of a 2-year experimental program to provide joint funding with other DOE organizations for integrated chiller replacement projects.

The increase of $ 1,759,000 in Other Conservation Projects will result in minimal IHEM Program efforts to retrofit DOE facilities to reduce energy costs and will increase future energy budgets by more than $80 million.

III. **Performance Summary**: IHEM FACILITIES OPERATIONS (Cont'd)

The increase of $ 3,500,000 in Surveys, Studies, and Operator Training will result in reduced level of effort with 30 less surveys performed, and $10 million in retrofit projects that will not be identified.

IN-HOUSE ENERGY MANAGEMENT

PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities:

This program provides the staffing resources and associated funding to support the overall direction of the In-House Energy Management (IHEM) Program. This includes providing direction, guidance and funding for the survey and study of facilities, utilities and processes owned by the DOE, in order to identify retrofit projects and modifications which save energy and have a high return on investment. These staff perform all project management activities ranging from policy development and long-range planning, to general administration. This includes functions such as: (1) setting priorities and selection of studies and retrofit projects to be funded; (2) monitoring and evaluation of the status of funded studies and retrofit projects; (3) review of new building designs to assure compliance with energy standards and requirements; (4) development of performance measures and criteria for energy management, and facilitating their incorporation into the Management and Operating contracts; (5) providing technical assistance, guidance, funding and coordination for the development of energy savings performance contracts; (6) reporting on the annual consumption and progress of the program towards the goals and requirements of EPACT and Executive Order 12902; (7) energy awareness and outreach activities; and (8) development and defense of budget submissions.

Performance indicators are: Reduction in annual buildings energy consumption per square foot of at least 1 percent.

FTEs were reduced by 1 FTE in FY 1996 and 1 in FY 1997 which is a 40% reduction. Program reductions will have adverse impacts on the program.

II. Funding Schedule: PROGRAM DIRECTION (Cont'd)

	FY 1995 Comparable Approp.	FY 1996 Original Approp.	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Approp.	FY 1997 Budget Request
Headquarters					
Salary and Benefits	$462		+$331	$331	$281
Travel	$ 11		+$ 11	$ 11	$ 10
Support Services	$110		$ 0	$ 0	$150
Total	$583	———	+$342	$342	$441
Full Time Equivalents	5		4	3	3
Average	$117		+$ 86	$147	$147

III. Performance Summary:

FY 1995 Accomplishments:

-- Supported a total of 5 FTEs at Headquarters to plan and implement the In-House Energy Management Programs. This staff was funded from Departmental Administrative Account.

-- 23.2 percent reduction in DOE buildings energy consumption per square foot as compared to FY 1985 resulting from cumulative efforts, already achieving the FY 2000 requirement of the Energy Policy Act and continuing toward the FY 2005 goal of Executive Order 12902.

-- 45.8 percent reduction in metered process energy consumption per square foot as compared to FY 1985 resulting from cumulative efforts.

-- Reduction in the Department's annual utility costs by greater than $180 million as compared to FY 1985.

FY 1996 Accomplishments (to date and planned):

-- A total of 4 FTEs will perform closeout functions for the IHEM Program, in addition to managing the remaining IHEM projects.

-- Complete 1 Energy Savings Performance Contract at a Departmental facility using private sector funding.

III. Performance Summary: PROGRAM DIRECTION (Cont'd)

FY 1997 Planned Accomplishments:

-- A total of $440,608 is requested for 3 FTEs to perform the IHEM Program.

-- Planning to survey over 10 percent of DOE facilities to meet the requirements of Executive Order 12902.

-- Planning to reduce annual buildings energy consumption per square foot by at least 1%.

-- Planning to initiate at least 2 Energy Savings Performance Contracts.

IV. Explanation of Funding Changes FY 1996 to FY 1997

A net increase of $ 99,000 is the result of (1) a staffing reduction of 1 FTE ($51,000); and (2) support services in FY 1997 to assist in closing out and management of remaining IHEM projects ($150,000).

V. Explanation of Average FTE Costs:

FY 1995 average FTE costs of $117,000 are based on 5 FTE's and $110,000 for support services contracts. FY 1996 average FTE costs of $86,000 are based on 4 FTEs and no funding for support service contracts; therefore the average FTE cost is lower. Average FTE costs increase in FY 1996 primarily due to needed support services of $150,000.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(dollars in thousands)

CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY

In-house Energy Management

Construction Project Summary

Project No.	Project Title	Prior Year Obligations	FY 1996 Appropriated	FY 1997 Request	Unappropriated Balance	TEC
IHE-500	Modifications for Energy Management, Various Locations	$78,664	$0	$1,759	$0	$1,759
Total, In-house Energy Management		$78,664	$0	$1,759	$0	$1,759

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
CONSTRUCTION PROJECT DATA SHEET
ENERGY SUPPLY RESEARCH AND DEVELOPMENT - PLANT AND CAPITAL EQUIPMENT

In-house Energy Management
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Modifications for Energy Management, Various Locations

2. Project No. IHE-500

3. Date A-E work initiated: 2nd Qtr. FY 1997

3a. Date physical construction starts: 4th Qtr. FY 1997

4. Date construction ends: 4th Qtr. FY 1999

5. Previous cost estimate: None
Date:

6. Current cost estimate: $1,759
Date: January 1996

7. Financial Schedule

Fiscal Year	Authorizations	Appropriations	Obligations	Costs
1997	$1,759	$1,759	$1,759	$1,000
1998				500
1999				259

8. Project Description, Justification and Scope:

This project provides for the design and construction of various small retrofit projects to reduce energy consumption. These small modifications will be selected on the basis of return on investment and energy savings. Projects compete on a DOE-wide basis for funding under this lump sum item, thus assuring the greatest return and greatest energy savings per investment dollar for the Department of Energy. The average payback for this line item based on past experience, is slightly greater than 3 years.

CONSTRUCTION PROJECT DATA SHEET

1. Title and Location of Project: Modifications for Energy Management, Various Locations 2. Project No IHE-500

8. Project Description, Justification and Scope (Cont.):

Approximately 10 of the most economical projects that will not be easily accomplished under private sector financing will be initiated, and some project scopes funded prior to FY 1994, will be extended. Extending the work scope to prior year projects will allow for a more flexible and faster approach to energy efficiency retrofit projects and will yeild increased energy savings. The projects will range from less than $5,000 to $5,000,000. The projects are for HVAC modifications, insulation of buildings, waste heat recovery, installation of more efficient lighting, steam line modifications, power factor improvements, etc. Some of these projects will generate rebate funds through utility company energy incentive programs. The quick payback projects selected for this line item will have the following total life-cycle cost effect utilizing a present value analysis:

Average Savings to Investment Ratio (SIR)	3.5
Average Payback Period	3.5 years
Total Annual Energy Savings	25 billion Btus
Annual Dollar Savings	$503,000

9. Details of Cost Estimate:

There are approximately 10 projects each with total estimated cost (TEC) less than $5,000,000 which will be initiated or extended by this project. The projects will be selected on the basis of economic return.

10. Method of Performance:

Design and inspection will be performed under negotiated architect-engineer contracts. Construction and procurement will be accomplished by fixed-price contracts awarded on the basis of competitive bidding.

11. Funding Schedule of Project Funding and Other Related Requirements:

Not required.

CONSTRUCTION PROJECT DATA SHEET

1. Title and Location of Project: Modifications for Energy Management, Various Locations 2. Project No. IHE-500

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements:

Not required.

13. Incorporation of Fallout Shelters:

Not applicable because these are small energy conservation retrofits of existing facilities.

14. Federal Compliance with Prevention Control Standards:

The total cost of these retrofits include the costs of those measures necessary to assure compliance with Executive Order 12088 where appropriate.

15. Evaluation of Flood Hazards:

Not applicable to small energy conservation retrofits.

16. Environmental Impact:

These small retrofits reduce energy consumption and thus reduce the Department's environmental impact.

17. Accessibility for the Handicapped:

Accessibility for the handicapped in accordance with the Architectural Barriers Act, PL 90-480 and 41 CFR 101.9 will be provided in these energy conservation retrofits where applicable.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
SOLAR AND RENEWABLE RESOURCE TECHNOLOGIES
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(dollars in thousands)

CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY

Capital Operating Expenses	FY 1995	FY 1996	FY 1997	$ CHG	% CHG
GPP/GPE (total)	$3,213	$ 500	$2,200	$1,700	340 %
Capital Equipment (total)	$6,730	$2,253	$9,572	$7,319	325 %
Totals	$9,943	$2,753	$11,772	$9,019	

Construction Project Summary (both Operating and Construction Funded)

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Unapprop. Balance
96-E-100	FTLB Expansion and Renovation Project, NREL	$5,500	$ 0	$ 0	$1,500	$2,800	$1,200
95-E-103	South Table Mountain Site Infrastructure, NREL	$2,750	$ 0	$2,750	$ 0	$ 0	$ 0
Total		$8,250	$ 0	$2,750	$1,500	$2,800	$1,200

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FY 1996 Comparability Matrix

FY 1996 Structure (FY96 adjusted)		FY 1997 Structure: Solar Bldg	Photovoltaic	Solar Thermal	Biofuels	Wind	REPI	Solar & Renewable Deployment	Resource Assmt	Geothermal	Hydrogen	Electric & Storage	NREL	Program Directn	Total Solar&Renew.	IHEM	Total ESR&D
Solar Bldg	1,942	1,942													1,942		1,942
PV	61,559		61,559												61,559		61,559
Solar Thermal	24,270			24,270											24,270		24,270
Biofuels	53,671				53,671										53,671		53,671
Wind	31,551					31,551									31,551		31,551
Solar Int'l	3,886							3,886							3,886		3,886
Tech Transfer	10,786							10,786							10,786		10,786
NREL	2,000												2,000		2,000		2,000
Resource Assmt	1,942								1,942						1,942		1,942
Solar Program Supp	662						662								662		662
Geothermal	29,892									29,892					29,892		29,892
Hydropower	3,500									3,500					3,500		3,500
Hydrogen	14,500										14,500				14,500		14,500
Electric	32,284											32,284			32,284		32,284
Storage	2,000											2,000			2,000		2,000
Policy&Mgmt	14,317													13,975	13,975	342	14,317
Solar & Renewable	286,781	1,942	61,559	24,270	53,671	31,551	662	14,671	1,942	33,392	14,500	34,284	2,000	13,975	288,419	342	
IHEM	0																0
Total ESR&D	286,781	1,942	61,559	24,270	53,671	31,551	662	14,671	1,942	33,392	14,500	34,284	2,000	13,975	288,419	342	286,761

FY 1995 Comparability Matrix

FY 1995 Structure (FY95 adjusted)		FY 1997 Structure: Solar Bldg	Photovoltaic	Solar Thermal	Biofuels	Wind	REPI	Solar & Renewable Deployment	Resource Assmt	Geothermal	Hydrogen	Electric & Storage	NREL	Program Directn	Total Solar&Renew.	IHEM	Total ESR&D
Solar Bldg	4,349	4,349													4,349		4,349
PV	82,935		82,935												82,935		82,935
Solar Thermal	30,075			30,075											30,075		30,075
Biofuels	52,192				52,192										52,192		52,192
Wind	44,545					44,545									44,545		44,545
Solar Int'l	8,953							8,953							8,953		8,953
Tech Transfer	19,916							19,916							19,916		19,916
NREL	5,963												5,963		5,963		5,963
Resource Assmt	3,807								3,807						3,807		3,807
Solar Progsam Supp	6,954		900	241	148	466	4,659		40	338	98	44			6,954		6,954
Solar Energy PD	8,200													8,200	8,200		8,200
Geothermal	41,379									40,379				1,000	41,379		41,379
Hydropower	4,810									4,720				90	4,810		4,810
Hydrogen	8,842										8,842				8,842		8,842
Electric	37,446											36,596		850	37,446		37,446
Storage	5,098											4,748		350	5,098		5,098
Policy&Mgmt	7,302													7,302	7,302		7,302
Solar & Renewable	372,786	4,349	83,835	30,316	52,340	45,031	4,659	28,869	3,847	45,437	8,940	41,388	5,963	17,792	372,786		
IHEM	30,632															30,632	30,632
Total ESR&D	403,398	4,349	83,835	30,316	52,340	45,031	4,659	28,869	3,847	45,437	8,940	41,388	5,963	17,792	372,786	30,632	403,398

Environmental Management

BUDGET JUSTIFICATION AND SUPPORTING MATERIALS FOR THIS ACTIVITY ARE CONTAINED IN A SEPARATE VOLUME

DOE/CR-0036
Volume 3 of 5

FY 1997
Congressional Budget Request

General Science and Research
Uranium Supply and Enrichment Activities
Isotope Production and Distribution
Nuclear Waste Disposal Fund
Power Marketing Administrations
Inspector General
Departmental Administration

Office of Chief Financial Officer

Department of Energy

March 1996

Volume 3

(1227)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
GENERAL SCIENCE AND RESEARCH
URANIUM SUPPLY AND ENRICHMENT ACTIVITIES
ISOTOPE PRODUCTION AND DISTRIBUTION
NUCLEAR WASTE DISPOSAL FUND
POWER MARKETING ADMINISTRATIONS
INSPECTOR GENERAL
DEPARTMENTAL ADMINISTRATION
VOLUME 3
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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy and Water Development Activities					
Energy supply research & development	3,412,738	2,869,382	3,020,497	151,115	5.3%
Uranium supply & enrichment activities	73,123	29,294	27,800	-1,494	-5.1%
Uranium enrichment D&D fund	301,327	278,807	240,200	-38,607	-13.8%
General science & research activities	970,329	982,150	1,009,150	27,000	2.7%
Atomic energy defense activities:					
Weapons activities	3,212,347	3,456,238	3,710,002	253,764	7.3%
Defense environmental restoration and waste mgmt	5,404,660	5,466,395	5,409,310	-57,085	-1.0%
Other defense programs	1,444,885	1,473,927	1,547,700	73,773	5.0%
Defense nuclear waste disposal	129,430	248,400	200,000	-48,400	-19.5%
Total, Atomic energy defense activities	10,191,322	10,644,960	10,867,012	222,052	2.1%
Departmental administration	94,415	86,733	119,475	32,742	37.8%
Office of the inspector general	28,036	26,601	29,605	3,004	11.3%
Power marketing administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	22,423	19,843	20,900	1,057	5.3%
Southwestern power administration	21,308	29,778	26,900	-2,878	-9.7%
Western area power administration	184,352	262,551	221,665	-40,886	-15.6%
Falcon & Amistad operating & maintenance fund	——	1,000	970	-30	-3.0%
Colorado river basin	——	——	-10,000	-10,000	——
Total, Power marketing administrations	234,575	317,432	264,435	-52,997	-16.7%
Federal energy regulatory commission	——	——	——	——	——
Nuclear waste disposal fund	392,630	151,626	200,028	48,402	31.9%
Total, Energy and Water Development Activities	**15,698,495**	**15,386,985**	**15,778,202**	**391,217**	**2.5%**

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Interior and Related Agencies					
Fossil energy research and development	421,370	421,497	348,508	-72,989	-17.3%
Alternative Fuels Production	-3,900	-2,400	-4,000	-1,600	-66.7%
Naval petroleum and oil shale reserves	186,993	148,786	149,500	714	0.5%
Energy conservation	717,482	538,913	715,363	176,450	32.7%
Economic regulation	12,408	6,297	2,725	-3,572	-56.7%
Strategic petroleum reserve	243,663	287,000	221,300	-65,700	-22.9%
SPR petroleum account	-107,764	-187,000	——	187,000	100.0%
Proceeds from sale of Weeks Island Oil, SPR decommissioning	——	-100,000	——	100,000	100.0%
Energy information administration	84,645	72,379	66,120	-6,259	-8.6%
Clean coal technology	36,276	150,000	-500,000	-650,000	-433.3%
Total, Interior and Related Agencies	**1,591,173**	**1,335,472**	**999,516**	**-335,956**	**-25.2%**
Energy and Water Development	15,698,495	15,386,985	15,778,202	391,217	2.5%
Uranium Enrichment D&D fund discretionary payments	-133,700	-350,000	-422,548	-72,548	-20.7%
Excess FERC receipts	——	-42,000	-25,892	16,108	38.4%
Total, Department of Energy	**17,155,968**	**16,330,457**	**16,329,278**	**-1,179**	**-0.0%**

[1] FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.

DEPARTMENT OF ENERGY
FY 1997 Congressional Budget Request
Staffing Summary

Energy and Water Development Activities	FTEs FY 1995	FY 1996	FY 1997	Percent Change
Energy Supply Research and Development	2,397	2,244	2,091	-7.3%
Uranium Enrichment Program Activities	56	51	46	-10.9%
Isotope Production and Distribution	9	11	11	0.0%
General Science and Research	86	92	90	-2.2%
Atomic Energy Defense Activities				
Weapons Activities	2,142	2,127	1,997	-6.5%
Environmental Restoration & Waste Mgmt	3,244	3,265	3,127	-4.4%
Materials Support & Other Defense Programs	722	777	770	-0.9%
Total, Atomic Energy Defense Activities	6,108	6,169	5,894	-4.7%
Departmental Administration	1,760	1,639	1,537	-6.6%
Office of the Inspector General	353	354	331	-6.9%
Power Marketing Administrations	4,998	4,960	4,925	-0.7%
Federal Energy Regulatory Commission	1,411	1,453	1,463	0.7%
Nuclear Waste Fund	260	248	230	-7.8%
Total, Energy & Water Development Activities	**17,438**	**17,221**	**16,618**	-3.6%

DEPARTMENT OF ENERGY
FY 1997 Congressional Budget Request
Staffing Summary

Interior and Related Agencies	FTEs FY 1995	FY 1996	FY 1997	Percent Change
Clean Coal Technology	80	76	71	-7.0%
Fossil Energy Research & Development	706	1,163	682	-70.5%
Naval Petroleum & Oil Shale Reserves	81	74	72	-2.8%
Energy Conservation	530	497	444	-11.9%
Emergency Preparedness	52	0	0	0.0%
Economic Regulation	112	90	54	-66.7%
Strategic Petroleum Reserve	156	148	139	-6.5%
Energy Information Administration	471	444	404	-9.9%
Total, Interior & Related Agencies Activities	**2,188**	**2,492**	**1,866**	-33.5%
Total Department of Energy	**19,626**	**19,713**	**18,484**	-6.6%

General Science and Research

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

GENERAL SCIENCE AND RESEARCH

VOLUME 3

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
General Science and Research					
High energy physics	632,163	667,000	679,125	12,125	1.8%
Nuclear physics	326,776	304,500	318,425	13,925	4.6%
General science program direction	11,400	10,650	11,600	950	8.9%
Subtotal, General Science and Research	970,339	982,150	1,009,150	27,000	2.7%
Use of prior year balances	-10	———	———	———	———
Total, General Science and Research	**970,329**	**982,150**	**1,009,150**	**27,000**	**2.7%**

PROPOSED APPROPRIATION LANGUAGE

For expenses of the Department of Energy activities including the purchase, construction and acquisition of plant and capital equipment and other expenses incidental thereto necessary for general science and research activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), including the acquisition or condemnation of any real property or facility or for plant or facility acquisition, construction, or expansion[; purchase of passenger motor vehicles (not to exceed 12 for replacement purposes only)], [$981,000,000], $1,009,000,000 to remain available until expended. (Energy and Water Development Appropriations Act, 1996.)

HIGH ENERGY PHYSICS

PROGRAM MISSION

The High Energy Physics (HEP) Program, a major component of the Department's fundamental research mission, is directed at understanding the nature of matter and energy at the most fundamental level, and the basic forces which govern all processes in nature. Fundamental research provides the necessary underpinning that enables the Nation to maintain its science and technology capabilities, to advance its industrial competitiveness, and to discover new and innovative approaches to our energy future.

The GOAL of the HEP Program is to:

Provide new insights into the nature of energy and matter so as to better understand the natural world.

The OBJECTIVES related to this goal are:

1. TO CONTINUE TO SUPPORT HIGH QUALITY RESEARCH - Support high quality university and laboratory based high energy physics research, both theoretical and experimental. Experimental research in HEP is primarily performed by university scientists using particle accelerators located at major laboratories in the U.S. and abroad.

2. TO EFFECTIVELY OPERATE THE DEPARTMENT'S HIGH ENERGY PHYSICS ACCELERATOR FACILITIES - Provide optimal and cost effective operation of the Fermi National Accelerator Laboratory, the Stanford Linear Accelerator Center, and the Alternating Gradient Synchrotron complex at the Brookhaven National Laboratory.

3. TO CONTINUE TO PROVIDE WORLD CLASS RESEARCH FACILITIES - Plan for and build new, state-of-the-art research facilities that allow researchers to advance the forefront of the science. Support essential improvements and upgrades at the major accelerator laboratories. Champion the construction of the Fermilab Main Injector project and the B-factory project at SLAC.

4. TO CONTINUE TO PROVIDE THE PROGRAM'S TECHNOLOGICAL BASE - Support long-range accelerator and detector R&D in order to develop the advanced concepts and technologies which are critical to the long-range viability of high energy physics research.

PROGRAM MISSION - HIGH ENERGY PHYSICS (Cont'd)

5. TO CONTINUE TO PURSUE INTERNATIONAL COLLABORATION ON LARGE SCIENCE PROJECTS - Continue to champion U.S. participation in the Large Hadron Collider (LHC) program at CERN. Recommend and defend funding for U.S. participation on the LHC project as recommended by the High Energy Physics Advisory Panel's "Future Vision" Subpanel. Continue negotiations with CERN leading to a formal agreement on U.S. participation in the LHC accelerator and major detector projects.

The 1994 HEPAP "Subpanel on the Vision for the Future of High Energy Physics" (Drell Subpanel) provided guidance on the future course of the HEP program. The above objectives strongly reflect that guidance.

PERFORMANCE MEASURES:

Performance measures related to basic science activities are primarily qualitative rather than quantitative. The scientific excellence of the HEP program is continually reevaluated through the peer review process. Some specific performance measures are:

1. Quality of scientific results and plans as indicated by expert advisory committees, peer reviews of the research, sustained progress, recognition by the scientific community, and awards received by DOE-supported HEP researchers.

2. Sustained achievement in advancing knowledge, as indicated by the publication of research results in refereed scientific journals, and by invited participation at national and international conferences and workshops.

3. Operation of research facilities in a manner that meets user requirements as indicated by achieving performance specifications while protecting the safety of the workers and the environment; meeting schedule and cost milestones; operating facilities that are used for research at the forefront of science; operating facilities reliably and according to planned schedules; maintaining and improving facilities at reasonable costs; and obtaining strong and enthusiastic endorsement by user organizations.

4. Accomplishment of all Fermilab Main Injector project and SLAC B-factory project cost and schedule milestones.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

1. Discovery at Fermilab of the top quark, the last of the fundamental building blocks of matter (quarks) predicted by the Standard Model of elementary particles.

2. The Tevatron accelerator at Fermilab continued to set world records for particle beam intensity (luminosity) by achieving a luminosity of 2.3×10^{31} $cm^{-2}sec^{-1}$, greatly exceeding its original 1981 design luminosity of 0.2×10^{31}.

3. The world's most precise measurement of the mass of the W boson at Fermilab.

4. The world's most precise measurement was made at SLAC of the weak mixing angle; a fundamental parameter of the Standard Model.

5. The Fermilab Main Injector Project is proceeding well and is within the planned cost and schedule profiles. All relevant milestones have been met. At the end of FY 1997 the project will be about 80% complete.

6. The B-factory Project at SLAC is proceeding well and is within the planned cost and schedule profiles. All relevant milestones have been met. At the end of FY 1997 the project will be about 90% complete.

7. The Director of the Office of Energy Research, and other U.S. representatives met with the Director-General of CERN in January 1996 to begin negotiations for the U.S. to join the CERN Large Hadron Collider project. A second negotiation meeting occurred in February. The negotiations are going well and a satisfactory agreement is expected by the end of 1996. Over 500 U.S. scientists have already shown their enthusiasm for participation in the LHC by joining the U.S.-ATLAS detector collaboration, the U.S.-CMS detector collaboration, or the U.S.-LHC accelerator consortium.

8. Participation in the LHC project at CERN will primarily take the form of U.S. accepting responsibility for providing particular subsystems of the accelerator and of the two large detectors. Thus much of the funding will go to U.S. groups for fabrication of components which will become part of the project. Funding is being provided in FY 1996 for preliminary design and engineering work needed to identify and clarify what subsystems should be considered for inclusion in the agreement with CERN. This funding is important in order to provide the cost and technical bases for the proposed U.S. responsibilities in LHC, and to be ready for rapid start to satisfy the anticipated timetable for the project. Funding in the amount of $15,000,000 is being requested for FY 1997 to support the initiation of those activities provided for in the anticipated agreement with CERN.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS (Cont'd):

9. The High Energy Physics request includes $403,975,000 to maintain support of the Department's scientific user facilities. Approximately 4% of this amount is associated with the continuation of the science user facilities initiative contained in the FY 1996 budget request. This investment will provide significant research time for thousands of scientists in universities, Federal agencies, and U.S. companies. It will also leverage both Federally and privately sponsored research, consistent with the Administration's strategy for enhancing the U.S. National science investment. This level supports users at FY 1996 levels. The proposed funding will support operations at all three of the Department's major high energy physics facilities: the Tevatron, the Stanford Linear Collider, and the Alternating Gradient Synchrotron. The proposed funding is consistent with the recommendations of the High Energy Physics Advisory panel expert subpanel that advised the Department on the appropriate future path for the Department's High Energy Physics program in the wake of the cancellation of the Superconducting Super Collider in 1993.

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HIGH ENERGY PHYSICS

PROGRAM FUNDING PROFILE

(Dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Research					
Physics Research	$139,139	$141,000	$0	$141,000	$141,290
Facility Operations	267,975	353,077	-86,505 a/	266,572	271,210
High Energy Technology	57,613	68,923	0	68,923	74,880
Related Capital Funding	80,436	0	86,505	86,505	91,745
Subtotal Research	545,163	563,000	0	563,000	579,125
Construction	87,000	104,000	0	104,000	100,000
Subtotal, High Energy Physics	632,163	667,000	0	667,000	679,125
Adjustment	-3 b/	0	0	0	0
Total, High Energy Physics	$632,160 c/	$667,000	$0	$667,000	$679,125

a/ Comparability transfer to Related Capital Funding ($86,505,000).

b/ Share of General Science and Research general reduction for use of prior year balances assigned to this program.

c/ Excludes $9,494,000 which has been transferred to the SBIR program and $475,000 which has been transferred to the STTR program.

Public Law Authorization:
Pub. Law 95-91, DOE Organization Act (1977)

HIGH ENERGY PHYSICS
(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office					
Los Alamos National Laboratory	$1,005	$806	$0	$806	$913
Chicago Operations Office					
Argonne National Laboratory	8,918	8,580	0	8,580	8,410
Brookhaven National Laboratory	76,347	73,712	0	73,712	70,782
Fermi National Accelerator Laboratory	248,631	256,213	0	256,213	259,743
Oakland Operations Office					
Lawrence Berkeley National Laboratory	23,111	21,393	0	21,393	20,983
Lawrence Livermore National Laboratory	1,445	490	0	490	490
Stanford Linear Accelerator Center	162,663	174,070	0	174,070	173,450
Oak Ridge Operations Office					
Continuous Electron Beam Accelerator Facility	211	220	0	220	211
Oak Ridge National Laboratory	470	250	0	250	406
Richland Operations Office					
Pacific Northwest Laboratory	45	45	0	45	52
All Other Sites a/	109,317	131,221	0	131,221	143,685
Subtotal	632,163	667,000	0	667,000	679,125
Adjustment	(3) b/	0	0	0	0
TOTAL	$632,160	$667,000	$0	$667,000	$679,125

a/ Funding provided to universities, industry, other federal agencies and other miscellaneous contractors.
b/ Share of General Science and Research general reduction for use of prior year balances assigned to this program.

HIGH ENERGY PHYSICS
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995		FY 1996		
		Comparable	Non-Comp	Comparable	Non-Comp	FY 1997
	Direct Funding:					
	Personnel compensation:					
11.1	Full-time permanent					
11.3	Other than full-time permanent					
11.5	Other personnel compensation					
11.8	Special personal services payments					
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits					
13.0	Benefits for former personnel					
21.0	Travel and transportation of persons					
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services					
25.2	Other services					
25.3	Purchases of goods and services from Government accounts	1,028	1,028	725	725	646
25.4	Operation and maintenance of facilities	360,067	360,067	353,007	353,007	350,973
25.5	Research and development contracts	12,266	12,266	39,417	39,417	54,140
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment	57,727	57,727	65,123	65,123	70,780
32.0	Land and structures	109,735	109,735	125,479	125,479	120,965
41.0	Grants, subsidies and contributions	91,375	91,375	83,427	83,427	81,621
99.0	Subtotal, obligations	632,198	632,198	667,178	667,178	679,125
	Reimbursable Obligations	-	-	-	-	-
99.9	Total Obligations	632,198	632,198	667,178	667,178	679,125
	Recovery of prior year obligations	-118	-118			
	Unobligated balance avail, start of year	-98	-98	-178	-178	0
	Unobligated balance avail, end of year	178	178			
	Budget Authority	$632,160	$632,160	$667,000	$667,000	$679,125

PHYSICS RESEARCH
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

This activity provides support for university and laboratory based research groups conducting experimental and theoretical research in high energy physics. This research probes the nature of matter and energy at the most fundamental level, and the characteristics of the basic forces in nature. Experimental research activities include: planning, design, fabrication and installation of experiments; conduct of experiments; analysis and interpretation of data; and publication of results. Theoretical physics research provides the framework for interpreting and understanding observed phenomena and, through predictions and extrapolations based on current understanding, identifies key questions for future experimental explorations. This subprogram supports more than 100 research groups at major universities as well as research groups at 9 DOE laboratories.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Fermilab National Accelerator Laboratory	$ 10,469	$ 10,158	$ 9,978	$ -180	-1.8%
Stanford Linear Accelerator Center	9,494	10,545	10,335	-210	-2.0%
Brookhaven National Laboratory	7,999	7,915	7,755	-160	-2.0%
Lawrence Berkeley Laboratory	10,370	10,265	10,065	-200	-2.0%
Argonne National Laboratory	5,791	5,625	5,515	-110	-2.0%
Universities and Other Labs	95,016	96,492	97,642	+1,150	+1.2%
Total, Physics Research	$139,139	$141,000	$141,290	$+ 290	+0.2%

III. Performance Summary:

FY 1995 Accomplishments:

- The conduct of experiments and the ongoing analysis of data collected in FY 1995 and previous years from the Tevatron Collider at Fermilab utilizing its CDF and D-Zero detector facilities.

III. Performance Summary: PHYSICS RESEARCH

- Discovery of the top quark by the CDF and D-Zero detector collaborations in experiments performed at Fermilab, and preliminary measurement of its mass.

- Conduct of experiments and the ongoing analysis of data collected in FY 1995 and previous years utilizing the SLD detector with the SLC collider at SLAC, and using the fixed target facilities in End Station A.

- The world's most precise measurement, at SLAC, of the weak mixing angle; a fundamental parameter of the Standard Model.

- Recorded extensive data using the kaon beams at the AGS at BNL in experiments searching for exceedingly rare decays of the kaon. These experiments are providing a stringent test of the presently accepted Standard Model of elementary particles.

- Participation in advanced R&D and design work related to the CMS and ATLAS detector facilities to be fabricated for future research at the LHC accelerator project at CERN.

- Conduct of experiments and the ongoing analysis of data collected earlier using four major detector facilities at the LEP collider at CERN.

- Major collaborator in a large international detector facility (ZEUS) at the DESY laboratory in Hamburg, Germany, recording collisions of high-energy positrons with high-energy protons in order to map the internal structure of the proton with unprecedented sensitivity.

- The world's most precise measurement of the mass of the W boson using the CDF detector at Fermilab. This measurement, combined with the measurement of the top quark mass, yields a rough prediction of the Higgs mass.

- Formulation of the research program and detailed design of the BaBar detector for the B-factory at SLAC.

- Major breakthrough at Rutgers and Princeton in the discovery of a solvable realistic quantum field theory.

- The discovery of several distant supernovas using particle-astrophysics techniques.

- Data collection using a highly instrumented 1000 ton detector deep underground in the Soudan mine in Minnesota, searching for the spontaneous decay of a nucleon and measuring the fluxes of background cosmic ray muons and neutrinos.

- Funding in the amount of $329,000 and $475,000 has been transferred to the SBIR and STTR programs, respectively.

III. Performance Summary: PHYSICS RESEARCH (Cont'd)

FY 1996 Accomplishments (to date and planned):

- o Completion of fabrication and initial operation of ten major new fixed target experiments at Fermilab.
- o Completion of a year-long period of data collection using the CDF and D-Zero detectors facilities at Fermilab, including significant upgrades of certain detector subsystems.
- o Analysis of data collected at CDF and D-Zero during the FY 1995 operation of the Tevatron accelerator facility.
- o Collect data using the SLD detector at the SLC at SLAC using the new vertex detector. Obtain important new understanding of B mesons.
- o Continue analysis of data recorded by experiments at the AGS at BNL which are searching for rare kaon decays.
- o Continue operation of 5 fixed target experiments at the AGS at BNL.
- o Commission the beam line which will deliver beams to an experiment intended to measure very precisely the magnetic properties of the muon. This is at the AGS at BNL.
- o Participation in design, engineering and R&D on CMS and ATLAS detectors for the LHC at CERN.
- o Conduct experiments and analysis of data collected using four major detectors at the LEP collider at CERN.
- o Continue work on the design and fabrication of the BaBar detector for use at the SLAC B-factory facility to be completed in FY 1998.
- o Further development of theoretical approaches to understanding and interpreting the most recent experimental results.
- o Continue operation of the Soudan underground detector searching for proton decay.
- o Complete fabrication and start initial operation of the Super-Kamiokande detector in Japan.

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III. Performance Summary: PHYSICS RESEARCH (Cont'd)

- Continue collaboration in the ZEUS positron-proton detector facility at DESY.

FY 1997 Planned Accomplishments:

- Completion of a two year long period of data collection for ten major fixed target experiments at Fermilab, which were installed and brought into operation in FY 1996.
- Analysis of the data collected during FY 1996 with the collider detectors and the fixed target experiments at Fermilab.
- Initial operation at the AGS at BNL of an experiment intended to measure very precisely the magnetic properties of the muon.
- Continue analysis of data recorded by the experiments at the AGS at BNL searching for rare kaon decays.
- Continue operation of 5 fixed target experiments at the AGS at BNL.
- Participate in design, engineering, and R&D on both the CMS and the ATLAS detector facilities for the LHC at CERN.
- Conduct experiments and analyze data collected earlier using four major detectors at the LEP collider at CERN.
- Continue work on the design and fabrication of the BaBar detector for use at the B-factory at SLAC.
- Major data collection using the Super-Kamiokande underground detector in Japan.
- Continue operation of the Soudan underground detector searching for proton decay.
- Continue collaboration in the ZEUS positron-proton experiment in Hamburg.

III. Performance Summary: PHYSICS RESEARCH (Cont'd)

Explanation of funding changes FY 1996 to FY 1997:

The decrease of $180,000 at Fermilab results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The decrease of $210,000 at SLAC results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The decrease of $160,000 at BNL results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The decrease of $200,000 at LBNL results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The decrease of $110,000 at ANL results from the programmatic shifts to provide funding for the involvement in the LHC and results from programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The increase of $1,150,000 in the University and Other Laboratories activity reflects continued strong support for the university based component of the HEP program.

HIGH ENERGY PHYSICS

FACILITY OPERATIONS
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

This activity provides for the operation of the large accelerator and detector facilities which are the essential tools that enable scientists in university and laboratory based research groups to perform experimental research in high energy physics. This subprogram includes funding for the operation and maintenance of the national laboratory research facilities including accelerators, colliders, secondary beam lines, detector facilities for experiments, experimental areas, computing, and computing networking facilities. It includes the costs of personnel, electric power, expendable supplies, replacement parts and subsystems, and inventories. The ultimate measure for success in this activity is whether the research scientists have data of sufficient quantity and quality to do their planned measurements or to discover new phenomena. The quality of the data is dependent on the accelerator and detector capabilities and on the degree to which those capabilities are achieved during a particular operating period. The quantity of the data relates primarily to the beam intensity, the length of the operating period, and the operational availability of the accelerator and detector facilities.

The principal objective of the Facility Operations Subprogram is to maximize the quantity and quality of data collected for approved experiments being conducted at the HEP facilities.

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II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Fermilab National Accelerator Laboratory	$143,542	$143,095	$142,815	$- 280	- 0.2%
Stanford Linear Accelerator Center	79,400	73,045	72,905	- 140	- 0.2%
Brookhaven National Laboratory	44,755	43,625	43,535	- 90	- 0.2%
Universities and Other Laboratories	278	6,807	11,955	+5,148	+75.6%
Total, Facility Operations	$267,975	$266,572	$271,210	$+4,638	+ 1.7%

III. Performance Summary: FACILITY OPERATIONS

FY 1995 Accomplishments:

- Operation of the Tevatron colliding beams facility at Fermilab for an extended period and with strong utilization of its CDF and D-Zero detector facilities. There were 40 weeks of operation with 70% availability, and 130 luminosity units of beam were delivered.
- Completion and installation of nine major new fixed target experiments at Fermilab in preparation for the planned 1996 fixed target run.
- Operation of the SLC Collider at SLAC utilizing the SLD detector facility for 25 weeks.
- Operation of the SLAC accelerator for 2 weeks for End Station A (fixed target) experiments.
- Operation of the SLAC accelerator for about 4 weeks for R&D studies relating to a future large linear collider.
- Operation of AGS at BNL for 5 major HEP experiments for 25 weeks.
- Preparation for fixed target operations at SLAC in FY 1996, including the upgrade of the polarized target for the experiments.
- Funding in the amount of $8,588,000 has been transferred to the SBIR program.

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FY 1996 Accomplishments (to date and planned):

- Operation of the Tevatron Collider at Fermilab for utilization of the CDF and D-Zero detector facilities during the first four months of FY 1996. This will provide 15 weeks of operation.
- Transition from collider operation to fixed target operation of the Tevatron at Fermilab by the end of the third quarter of FY 1996.
- Operation for research of the Tevatron fixed target facilities at Fermilab for 12 weeks.
- Operation of the SLC Collider at SLAC utilizing the SLD detector facility for 25 weeks.
- Operation of fixed target facilities at SLAC for End Station A for 10 weeks.

III. Performance Summary: FACILITY OPERATIONS (Cont'd)

- o Operation of the SLAC accelerator for about 4 weeks for R&D studies relating to a future large linear collider.
- o Operation of the AGS at BNL for 5 major HEP experiments for 14 weeks providing the world's highest intensity Kaon beams for experiments probing the boundaries of known physics.
- o Operation of the AGS at BNL for 2 weeks for the initial engineering shakedown of the experiment intended to measure very precisely the magnetic properties of the muon.
- o Funding in the amount of $4,598,000 has been budgeted for the SBIR program.

FY 1997 Planned Accomplishments:

- o Operation of the fixed target capabilities of the Tevatron at Fermilab for about 29 weeks.
- o Operation of the SLC Collider at SLAC utilizing the SLD detector facility for 26 weeks.
- o Operation of fixed target facilities at SLAC for End Station A for 6 weeks.
- o Operation of the SLAC accelerator for about 4 weeks for R&D studies relating to the a future large linear collider.
- o Operation of the AGS at BNL for 5 major HEP experiments for 15 weeks providing the world's highest intensity Kaon beams for experiments probing the boundaries of known physics and for the experiment to measure the magnetic properties of the muon.
- o Funding in the amount of $7,954,000 has been budgeted for the SBIR program.

Explanation of funding changes FY 1996 to FY 1997:

The decrease of $280,000 at Fermilab results from programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The decrease of $140,000 at SLAC results from programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

III. Performance Summary: FACILITY OPERATIONS (Cont'd)

The decrease of $90,000 at BNL results from programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The increase of $5,148,000 in Universities and Other Labs reflects an increase of $3,356,000 in the SBIR allocation and an increase of $1,792,000 in other programmatic activities.

HIGH ENERGY TECHNOLOGY
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

This subprogram provides the specialized advanced technology R&D required to sustain and extend the technology base and provide operational support for the highly specialized accelerators, colliding beams facilities, and detector facilities which are essential to the overall high energy physics program goal of carrying out forefront research. The objectives of this subprogram include: 1) carry out R&D in support of existing accelerator and detector facilities aimed at maintaining and improving their performance parameters and cost effectiveness; 2) carry out R&D in support of planned and proposed projects to maximize their performance goals and cost effectiveness; 3) carry out R&D to transfer new concepts and technologies into practical application in the HEP context; and 4) carry out R&D to search for and develop new concepts and ideas which could lead to significant enhancements of research capabilities or to significant cost savings in the construction and operation of new facilities. This subprogram supports work primarily at the DOE labs, but also at universities, other federal labs, and in industry.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Fermilab National Accelerator Laboratory	$14,394	$13,785	$13,515	$- 270	- 2.0%
Stanford Linear Accelerator Center	13,367	15,480	15,170	- 310	- 2.0%
Brookhaven National Laboratory	6,329	6,415	6,285	- 130	- 2.0%
Lawrence Berkeley National Laboratory	9,585	9,313	9,133	- 180	- 1.9%
Universities and Other Labs	13,938	23,930	30,777	+ 6,847	+28.6%
Total, High Energy Technology	$57,613	$68,923	$74,880	$+ 5,957	+ 8.6%

III. Performance Summary:

FY 1995 Accomplishments:

- Produced beams of ultra short electron bunches in the Argonne Wakefield Accelerator with 100 nanoCoulombs in each bunch. This exceeds, by a factor of about 10, the previous world's record.

III. Performance Summary: HIGH ENERGY TECHNOLOGY (Cont'd)

- Completed preparations for new experiments on the LBNL Advanced Light Source test beam line.
- Developed, at LBNL, radiation-hard, high-speed silicon readout chips for use at Fermilab.
- Carried out R&D in support of upgrading the two Tevatron collider detectors to exploit the increased data rates that the Fermilab Main Injector will provide beginning in FY 1999.
- Tested, at BNL, superconducting wire and cable produced for use in several projects. This included critical current measurements, and stability tests on special cable prepared at CERN.
- The BNL Accelerator Test Facility (ATF) set a world record brightness for electron accelerators of 60 amperes per square millimeter. Using a CO_2 laser synchronized to the beam pulses of an electron linear accelerator, the ATF achieved a laser acceleration record of 3.7 million electron volts over 12 centimeters.
- Continued R&D on the feasibility of a high energy linear collider including work on beam optics, high gradient accelerating structures, and the RF system.
- Continued development of advanced detector technology for the B-factory detector.
- Upgraded the optics in End Station A at SLAC to handle a linac energy of 55 GeV for the experimental program.
- Upgraded the SLC to produce a performance level of 100,000 Z° particles per year at an average electron polarization of 80%.
- Demonstrated improved capability for accelerating polarized protons in the AGS at BNL.
- Performed R&D in support of the B-factory Project. This was done at SLAC, LBNL and LLNL.
- Funding in the amount of $577,000 has been transferred to the SBIR program.

III. Performance Summary: HIGH ENERGY TECHNOLOGY (Cont'd)

FY 1996 Accomplishments (to date and planned):

- o Develop, at the Argonne Wakefield Accelerator, a laser beam with a hemispherical wavefront to produce higher intensity electron bunches.
- o Develop and test, at LBNL, new superconducting wire coatings and materials to improve accelerator magnet performance.
- o Complete testing at LBNL of a magnet built using brittle superconductors capable of producing a much higher magnetic field than is available in accelerator magnets in present use.
- o Complete tests of plasma lens at LBNL, perform studies of the interactions of laser beams and electron beams, and initiate laser acceleration studies at the Advanced Light Source test beam line.
- o Perform, at LBNL, R&D on damping rings for a future linear collider.
- o Test the increased data-rate capability of the two upgraded Tevatron collider detectors using the proton beam extracted from the Tevatron. The D-Zero upgrade to silicon tracking is completed.
- o Develop the capability to test, at BNL, superconducting cable in superfluid helium.
- o Funding in the amount of $4,800,000 is being used for planning and design activities in the U.S. in preparation for the proposed U.S. involvement in the LHC project at CERN.
- o Continued R&D at BNL on RF guns and laser acceleration in the range of 40 to 100 MeV.
- o Complete studies designed to upgrade the SLC to a performance level of 250,000 Z°s per year with greater than 80% polarization of the electron beam.
- o Continue R&D at SLAC on the feasibility of a high energy linear collider including high gradient structures, RF System and beam optics.
- o Complete and bring into initial operation the Next Linear Collider Test Facility (NLCTF) at SLAC.
- o Funding in the amount of $4,932,000 and $715,000 has been budgeted for the SBIR and STTR programs, respectively.

III. Performance Summary: HIGH ENERGY TECHNOLOGY (Cont'd)

FY 1997 Planned Accomplishments:

- Perform the first ever experiments studying wakefield acceleration in dielectric loaded waveguide.
- Apply new LBNL superconducting cables to specific high energy physics magnet upgrades, and fabricate a new higher-field magnet specifically based on improved high-field cable.
- Perform laser acceleration tests on the LBNL Advanced Light Source test beam line; begin tests on relativistic klystron two-beam accelerating hardware.
- Continue collaborative studies at LBNL and SLAC on B-Factory and large linear collider.
- Completion and testing of a new tracking subsystem for the CDF at Fermilab with improved radiation resistance.
- Production testing of LHC superconducting cable at BNL under the US/CERN program for participation in the new collider.
- Funding in the amount of $12,000,000 is requested for U.S. based efforts on the LHC project in accord with the U.S.-CERN agreement on participation in the LHC which is expected to be concluded in 1996.
- Complete and bring into operation a new barrier cavity for use in the AGS at BNL during beam injection and stacking. This will allow new record proton beam intensities, making new generation high precision experiments possible.
- Bring into operation a laser grating accelerator at the ATF at BNL.
- Continue upgrades to the Tevatron Collider accelerator at Fermilab and to the CDF and D-Zero detector facilities in preparation for operation with the higher beam intensities available from the new Fermilab Main Injector beginning in FY 1999.
- Completion of initial feasibility studies for a large linear collider.
- Commissioning of the NLCTF and initial tests on high gradient accelerating structure performance and RF power systems.
- Funding in the amount of $4,231,000 has been budgeted for the SBIR program.

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III. Performance Summary: HIGH ENERGY TECHNOLOGY (Cont'd)

Explanation of funding changes FY 1996 to FY 1997:

The decrease of $270,000 at Fermilab results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The decrease of $310,000 at SLAC results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The decrease of $130,000 at BNL results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The decrease of $180,000 at LBNL results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

The net increase of $6,847,000 in the University and Other Laboratory activity is the result of a $7,200,000 increase in funding for R&D related to the LHC project together with a $348,000 increase in other program activities and a $701,000 decrease in the allocation for the SBIR programs.

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RELATED CAPITAL FUNDING
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

This activity provides for improvements and modifications to existing accelerator and detector facilities that are necessary to explore the fundamental nature of matter. Major accelerator and detector construction projects are included in the construction section. The subprogram includes Accelerator Improvement Projects, which are small projects designed to improve existing accelerator and detector facilities; and Capital Equipment, which provides for new equipment and facilities or the enhancement or extension of existing facilities when Plant changes are not required. In addition, the subprogram includes General Plant Projects and General Purpose Equipment which provide for general purpose facilities not directly a part of the scientific program of a laboratory but essential for maintaining the infrastructure of a site and for addressing ES&H needs.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$57,700	$65,120	$70,780	$+5,660	+8.7%
General Plant Projects	12,146	12,275	12,025	- 250	-2.0%
Accelerator Improvement Projects	10,590	9,110	8,940	- 170	-1.9%
Total, Related Capital Funding	$80,436	$86,505	$91,745	$+5,240	+6.1%

III. Performance Summary:

FY 1995 Accomplishments:

- Established formal collaboration among the parties who will build BaBar, the B-factory detector. This collaboration involves SLAC and a number of other US and foreign universities and laboratories. Initiated detailed engineering design of the detector The B-factory detector at SLAC has been identified as a Major Item of Equipment, and was funded at $7,500,000, with a Tr Estimated Cost of $67,000,000.

III. Performance Summary: RELATED CAPITAL FUNDING

- The Super-Kamiokande experiment in Japan has been identified as a Major Item of Equipment, and was funded at $880,000, with a Total Estimated Cost of $3,584,000.

- The g-2 experiment at BNL has been identified as a Major Item of Equipment, and was funded at $2,923,000, with a Total Estimated Cost of $16,893,000.

- Rare K decay experiment at BNL has been identified as a Major Item of Equipment, and was funded at $400,000, with a Total Estimated Cost of $9,864,000.

- The D-Zero Upgrade at Fermilab has been identified as a Major Item of Equipment, and was funded at $4,447,000, with a Total Estimated Cost of $55,270,000.

- The CDF Upgrade at Fermilab has been identified as a Major Item of Equipment, and was funded at $4,447,000, with a Total Estimated Cost of $57,940,000.

- KTeV at Fermilab has been identified as a Major Item of Equipment, and was funded at $3,461,000, with a Total Estimated Cost of $18,125,000.

- The Next Linear Collider Test Facility at SLAC has been identified as a Major Item of Equipment, and was funded at $1,700,000, with a Total Estimated Cost of $13,100,000.

- GPP funding was provided for minor new construction, other capital alterations and addition, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project did not exceed $2,000,000.

- AIP funding supported additions and modifications to accelerator facilities which are supported by the HEP research program.

III.Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

FY 1996 Accomplishments (to date and planned):

- Acquisition and fabrication of equipment in support of the R&D program related to the proposed U.S. involvement in the LHC project at CERN. The fund being provided is $1,200,000.
- Procurement of major components of the BaBar detector for the B-factory at SLAC. The B-factory detector at SLAC has been identified as a Major Item of Equipment, and was funded at $14,000,000, with a Total Estimated Cost of $67,000,000.
- The Antimatter Spectrometer in Space experiment has been identified as a Major Item of Equipment, and will be funded at $2,125,000, with a Total Estimated Cost of $2,625,000.
- The Super-Kamiokande experiment in Japan has been identified as a Major Item of Equipment, and will be funded at $1,080,000, with a Total Estimated Cost of $3,584,000.
- The g-2 experiment at BNL has been identified as a Major Item of Equipment, and will be funded at $2,500,000, with a Total Estimated Cost of $16,893,000.
- Rare K decay experiment at BNL has been identified as a Major Item of Equipment, and will be funded at $1,000,000, with a Total Estimated Cost of $9,864,000.
- The D-Zero Upgrade at Fermilab has been identified as a Major Item of Equipment, and will be funded at $7,625,000, with a Total Estimated Cost of $55,270,000.
- The CDF Upgrade at Fermilab has been identified as a Major Item of Equipment, and will be funded at $7,625,000, with a Total Estimated Cost of $57,940,000.
- KTeV at Fermilab has been identified as a Major Item of Equipment, and will be funded at $1,525,000, with a Total Estimated Cost of $18,125,000.
- The Next Linear Collider Test Facility at SLAC has been identified as a Major Item of Equipment, and will be funded at $1,700,000, with a Total Estimated Cost of $13,100,000.

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III.Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

- GPP funding will be provided for minor new construction, other capital alterations and addition, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

- AIP funding supported additions and modifications to accelerator facilities which are supported by the HEP research program. The total estimated cost of each project will not exceed $2,000,000.

FY 1997 Planned Accomplishments:

- Funding in the amount of $3,000,000 is being requested for acquisition and fabrication of equipment in support of the R&D program related to the U.S. involvement in the LHC project at CERN in accord with the U.S.-CERN agreement on participation in LHC which is expected to be concluded in 1996.

- Completion of the subsystems of the BaBar detector and initiation of assembly in the detector hall in anticipation of first research with the B-factory in FY 1999. The B-factory detector at SLAC has been identified as a Major Item of Equipment, and will be funded at $20,500,000, with a Total Estimated Cost of $67,000,000.

- Delivery and testing of the large solenoidal magnet for the D-Zero detector facility upgrade at Fermilab.

- The Antimatter Spectrometer in Space experiment has been identified as a Major Item of Equipment, and will be funded at $500,000, with a Total Estimated Cost of $2,625,000.

- The Super-Kamiokande experiment in Japan has been identified as a Major Item of Equipment, and will be funded at $593,000, with a Total Estimated Cost of $3,584,000.

- Rare K decay experiment at BNL has been identified as a Major Item of Equipment, and will be funded at $1,000,000, with a Total Estimated Cost of $9,864,000.

III. Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

- The D-Zero Upgrade at Fermilab has been identified as a Major Item of Equipment, and will be funded at $10,000,000, with a Total Estimated Cost of $55,270,000.

- The CDF Upgrade at Fermilab has been identified as a Major Item of Equipment, and will be funded at $10,000,000, with a Total Estimated Cost of $57,940,000.

- GPP funding will be provided for minor new construction, other capital alterations and addition, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

- AIP funding supported additions and modifications to accelerator facilities which are supported by the HEP research program. The total estimated cost of each project will not exceed $2,000,000.

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Explanation of funding changes FY 1996 to FY 1997:

- The decrease of $250,000 in GPP results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

- The decrease of $170,000 in AIP results from the programmatic shifts to provide funding for the involvement in the LHC and for the three major detector fabrication programs.

- The funding for Other Capital Equipment at BNL is unchanged.

- The increase of $5,660,000 in programmatic Capital Equipment reflects an increase of $1,800,000 for R&D efforts related to the proposed U.S. involvement in the LHC project, an increase of $4,170,000 in the funding for SLAC with strong emphasis on the B-factory detector, an increase of $4,500,000 in the funding for Fermilab with strong emphasis on the CDF and D-Zero upgrade projects at Fermilab offset by a decrease of $4,810,000 in other program activities.

CONSTRUCTION
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Construction	$87,000	$104,000	$100,000	$-4,000	-3.9%
Total, Construction	$87,000	$104,000	$100,000	$-4,000	-3.9%

III. Performance Summary:

FERMILAB MAIN INJECTOR

FY 1995 Accomplishments:

- Completion of construction of 3/4 of ring tunnel and fabrication and testing 1/4 of the main dipole magnets for the Fermilab Main Injector Project.
- At the end of FY 1995, the Fermilab Main Injector Project was 36% complete.

FY 1996 Accomplishments (to date and planned):

- Completion of construction of all of the ring tunnel and service buildings, and fabrication and testing of 70% of the main dipole magnets for the Fermilab Main Injector Project.
- At the end of FY 1996, the Fermilab Main Injector Project will be 62% complete.

III. Performance Summary: CONSTRUCTION (Cont'd)

FY 1997 Planned Accomplishments:

- o Completion of 95% of the main dipole magnets, all of the magnet power supplies, and the local electric power substation for the Fermilab Main Injector Project.
- o At the end of FY 1997, the Fermilab Main Injector Project will be 80% complete.

SLAC B-FACTORY

FY 1995 Accomplishments:

- o Completion of tunnel clearing; initiation of refurbishment of magnets for the high energy ring; and initiation of fabrication of magnets for the low energy ring; for the B-factory Project at SLAC.
- o At the end of FY 1995, the SLAC B-factory Project was 36% complete.

FY 1996 Accomplishments (to date and planned):

- o Completion of fabrication and installation of all of the magnets and vacuum chambers for the high energy ring; successful testing of the electron transfer lines; completion and initial testing of the control system; and completion of the positron extraction system for the B-factory Project at SLAC.
- o At the end of FY 1996, the SLAC B-factory Project will be 70% complete.

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III. Performance Summary: CONSTRUCTION (Cont'd)

FY 1997 Planned Accomplishments:

- Completion of the technical components of the B-factory and initiation of testing with beam in anticipation of project completion in FY 1998.
- At the end of FY 1997, the SLAC B-factory Project will be 90% complete.

SLAC MASTER SUBSTATION UPGRADE

FY 1995 Accomplishments:

- N/A (project begins in FY 1997)

FY 1996 Accomplishments (to date and planned):

- N/A (project begins in FY 1997)

FY 1997 Planned Accomplishments:

- Initiation of an infrastructure improvement project at SLAC to upgrade and reconfigure the master substation which supplies power to the entire SLAC site. This will replace obsolete and hard to maintain switchgear; improve worker safety; and extend the useful life of the two primary transformers.
- At the end of FY 1997, the SLAC Master Substation Upgrade Project will be 25% complete.

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III. Performance Summary: CONSTRUCTION (Cont'd)

Explanation of funding changes FY 1996 to FY 1997:

Level funding for the Fermilab Main Injector maintains the project on the approved funding profile.

The decrease of $7,000,000 in the SLAC B-factory maintains the project on the approved funding profile.

Funding of $3,000,000 is included for initiation of the SLAC Master Substation Upgrade.

HIGH ENERGY PHYSICS
CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY
(Dollars in thousands)

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Operating Expenses					
General Plant Projects (total)	$12,146	$12,275	$12,025	$-250	-2.0%
Capital Equipment (total)	57,700	65,120	70,780	+5,660	+8.7%
Accelerator Improvement Projects (total)	10,590	9,110	8,940	-170	-1.9%

Construction Project Summary (both Operating and Construction Funded)

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Unapprop. Balance
92-G-302	Fermilab Main Injector	$229,600	$51,650	$43,000	$52,000	$52,000	$30,950
94-G-304	B-Factory	177,000	36,000	44,000	52,000	45,000	0
97-G-303	SLAC Master Substation Upgrade	12,400	--	--	--	3,000	9,400
Total High Energy Physics		--	$87,650	$87,000	$104,000	$100,000	$40,350

Major Items of Equipment (CE $2 Million and Above)

	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Acceptance Date
1. g-2 Experiment	$ 16,893	$ 11,470	$ 2,923	$ 2,500	$ 0	FY 1996
2. Rare k-decay Experiment	9,864	7,464	400	1,000	1,000	FY 1997
3. KTeV Experiment	18,125	13,139	3,461	1,525	0	FY 1996
4. D-Zero Upgrade	55,270	8,490	4,447	7,625	10,000	FY 1999
5. CDF Upgrade	57,940	9,960	4,447	7,625	10,000	FY 1999
6. B-factory detector (BaBar)*	67,000	1,000	7,500	14,000	20,500	FY 1998
7. Next Linear Collider Test Facility	13,100	9,700	1,700	1,700	0	FY 1996
8. AntiMatter in Space	2,625	0	0	2,125	500	FY 1997
9. Super-Kamiokande	3,584	500	880	1,080	593	FY 1998

* The funding for the B-factory detector reflects cost savings of about $20,000,000 resulting from contributions of components and subsystems by non-U.S. collaborating institutions.

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

GENERAL SCIENCE AND RESEARCH

PROJECT DATA SHEETS

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GENERAL SCIENCE AND RESEARCH - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

HIGH ENERGY PHYSICS

1. Title and location of project: Master Substation Upgrade Stanford Linear Accelerator Center	2a. Project No. 97-G-303 2b. Construction Funded
3a. Date A-E Work Initiated: 1st Qtr. FY 1997 3b. A-E Work (Title I & Title II) Duration: 6 months	5. Previous Construction Estimate: None Total Estimated Cost (TEC) -- None Total Project Cost (TPC) -- None
4a. Date Physical Construction Starts: 3rd Qtr. FY 1997 4b. Date Construction Ends: 4th Qtr. FY 1998	6. Current Cost Estimate: TEC -- $12,400 TPC -- $12,430

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Obligations	Costs
1997	3,000	3,000	3,000
1998	9,400	9,400	9,400

8. Project Description, Justification and Scope

This project replaces obsolete equipment and reconfigures the master substation to optimize the reliability and operational flexibility of this primary site substation.

The present substation configuration requires the primary transformers to operate with a significantly unbalanced loading, reducing the life of one while underutilizing the other. The new configuration will allow the balancing of load between the two primary transformers, effectively lengthening their service life indefinitely.

1. Title and location of project: Master Substation Upgrade
Stanford Linear Accelerator Center

2a. Project No. 97-G-303
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

Existing switchgear was built by several different manufacturers, some of which have been out of business for more than 15 years. The switchgear is 30 years old and approaching the end of its useful life. Spare parts are not available and we must rely on overhauled or used parts to repair this equipment. New switchgear will be in compliance with current OSHA safety regulations, improving worker safety.

Present 230kV distribution to the two primary transformers consists of a combination of exposed overhead buss to one primary transformer and SF_6 insulated buss to the other primary transformer. The SF_6 buss requires continuous monitoring and frequent maintenance due to SF_6 leaks and overtemperature problems. Safety disconnects for the SF_6 buss cannot be visually verified in the open position due to the discoloration of their windows requiring the electricians to verify their status by making voltage measurements. This SF_6 buss and disconnects will be replaced by exposed overhead buss and open disconnects to match the other primary transformer configuration.

Obsolete 12.47kV switchgear will be replaced by new switchgear capacity to operate the two 230kV primary site transformers in parallel rather than separately, as presently done. The two primary site transformers will be relocated next to each other and provided with new overhead buss and open frame disconnect switches to eliminate the troublesome SF_6 buss and disconnect switches currently in use.

Backup power is provided through a separate 69kV source which is reduced by two transformers to 12.47kV that is out of phase with the 12.47kV from the two primary transformers. The phase difference prevents parallel operation of a primary and backup transformer. In order to utilize the backup source, the entire site load must be turned off and then restarted to prevent damage due to the out-of-phase incompatibility. This project will replace the two 69kV transformers by a single transformer that is in-phase with the primary 230kV transformers. In-phase backup power will allow transfers between primary and backup sources without the time lost in turning off and restarting all the connected loads.

Relocating one of the 230kV primary transformers and placing the new 69kV transformer in new locations will reduce the installation costs for the buss replacements and allow construction of new concrete secondary containment for these two transformers, which will bring them into compliance with environmental regulations for oil filled equipment.

The activities in the first year of this project will consist of initial procurements, detailed engineering, and installation of those portions of this project that do not require site power outages.

Procurement and installation of the remainder of the project will be completed in the second year.

1. Title and location of project: Master Substation Upgrade
Stanford Linear Accelerator Center

2a. Project No. 97-G-303
2b. Construction Funded

9. Details of Cost Estimate*

The following dollar distribution represents the new obligation authority necessary beginning in FY 1997 for the construction project described herein:

	Item Cost	Total Cost
a. Engineering Design and Inspection		$ 1,640
1. Engineering Design and Inspection at approximately 14% of Construction	$ 1,170	
2. Project Management at approximately 5% of Construction	470	
b. Construction Cost	9,330	
1. Equipment and Materials	6,820	
2. Removal and Installation	2,510	
c. Subtotal Engineering Design and Inspection, Construction and Project Management		10,970
d. Contingency at 13% of Item C		1,430
e. Total estimated project cost		$ 12,400

* All costs are escalated to the mid-point of construction. The rates used are 4.0, 3.9, and 3.8 percent for the years FY 1995, FY 1996, and FY 1997 respectively, as shown in the "DOE Department Price Change Index," dated January 1995.

A conceptual design report titled "Master Substation Upgrade" is completed for an estimated cost of $30,000.

10. Method of Performance

Engineering, design and inspection will be accomplished by SLAC Plant Engineering personnel. To the extent feasible, equipment and materials, removal and installation will be accomplished by fixed-price procurements or subcontracts awarded on the basis of competitive bidding.

1. Title and location of project: Master Substation Upgrade
Stanford Linear Accelerator Center

2a. Project No: 97-G-303
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs							
1. Total facility costs							
(a) Line item	$ 0	$ 0	$ 0	$ 0	$ 3,000	$ 9,400	$12,400
	0	0	0	0	3,000	9,400	12,400
2. Other project costs							
(a) Conceptual Design Cost	0	0	30	0	0	0	30
Total Project Costs (TPC)	$ 0	$ 0	$ 30	$ 0	$ 3,000	$ 9,400	$12,430

12. Narrative Explanation of Project Funding

a. Total project funding
   1. Total facility costs
      a. Line Item - Narrative not required.
      b. Expense - Funded Equipment - None.
      c. Inventories - None.
      d. Non-Federal Contribution - None.
   2. Other project costs
      a. R&D Necessary to Complete Construction - None.
      b. Conceptual Design - Narrative not required.
      c. Non-Federal Contribution - None.

b. Related annual costs
   Annual operating cost will be reduced as a result of improved system reliability and high efficiencies.

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GENERAL SCIENCE AND RESEARCH - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

HIGH ENERGY PHYSICS

1. Title and Location of Project: B-Factory
Stanford Linear Accelertor Center (SLAC)

2a. Project No.: 94-G-304
2b. Construction Funded

3a. Date A-E Work Initiated: 1st Qtr. FY 1994

3b. A-E Work (Title I & Title II) Duration: 30 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $177,000
Total Project Cost (TPC) -- $293,200

4a. Date Physical Construction Starts: 1st Qtr. FY 1994

4b. Date Construction Ends: 4th Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $177,000
TPC -- $293,200

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Obligations	Costs
1994	$ 36,000	$36,000	$13,385
1995	44,000	44,000	39,470
1996	52,000	52,000	60,000
1997	45,000	45,000	47,430
1998	0	0	16,715

8. Project Description, Justification and Scope

The project involves the modification of the SLAC linac and Positron-Electron Project (PEP) storage ring to provide for collisions of 9-GeV electrons with 3-GeV positrons at high luminosity. The existing PEP ring will be upgraded and used for the electrons. A new, separate, lower energy ring for the positrons will be provided in the PEP tunnel. The two rings will intersect in one of the existing PEP interaction

8. Project Description, Justification and Scope (Continued)

regions, where a particle detector will be installed. At the completion of the project it will be possible to accelerate electrons to 9 GeV and positrons to 3 GeV in the linac, inject them into the storage rings, bring them into collision at a luminosity in the range of 10^{33} $cm^{-2}s^{-1}$, and detect the products of the collisions.

Specifically provided for in the scope of the project are the following actions:

- The linac, which can accelerate both electrons and positrons to 50 GeV over its full length of 2 miles, will be modified to permit the extraction of 9-GeV electrons and 3-GeV positrons at the appropriate points.
- Two bypass lines, including appropriate magnetic optical elements, will be installed alongside the linac in the existing linac enclosure to permit the 9-GeV and 3-GeV extracted beams to be transported to the end of the linac.
- The PEP storage ring, which has a circumference of 2.2 km, will be refurbished.
  - The existing PEP storage ring magnet system will be removed from the tunnel, refurbished for storing electrons at 9 GeV with increased luminosity, and reinstalled in the tunnel.
  - A new, 3-GeV positron storage ring will be constructed and installed in the PEP tunnel along with the electron storage ring.
  - The beam lines that now connect the linac to the PEP ring will be modified to allow electron and positron beams of different energies to be transported from the ends of the new bypass lines to the storage rings.
  - The existing PEP cooling water system and electrical power distribution system will be modified for the B-Factory.
  - New microwave power and control systems will be constructed for the storage rings.

The project requires no conventional construction. The project will be housed in the existing Linac and PEP ring enclosures.

The primary purpose of this project is to provide a facility for observing colliding beams of electrons and positrons at a center-of-mass collision energy of 10 GeV to 11 GeV with sufficient luminosity, and with electrons and positrons having sufficiently different energies, to measure the extent to which charge/parity conservation is violated in the B meson system and thereby test the predictions of the Standard Model of particle physics in this important area. A second important purpose is to provide a facility for pursuing a broad program of experimental studies of bottom quark, charm quark, tau lepton, and two-photon physics with large numbers of events and thus high

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8. Project Description, Justification and Scope (Continued)

precision. This broad-based program of experiments will directly confront a number of crucial questions about the Standard Model and, consequently, will provide possibly the best window to new physics understanding of any currently proposed facility.

Violation of charge/parity conservation, or CP violation, is a fundamental, symmetry-breaking process that is believed to be responsible for our very existence - without it the equal amounts of matter and antimatter that it is thought were formed at the origin of the universe might by now have come together and been annihilated. The Standard Model, which is the embodiment of our most basic understanding of particle physics, predicts that CP violation is manifested in significantly different decay rates for neutral B mesons and antimesons. Yet, because no existing accelerator can produce enough pairs of B mesons and antimesons to observe the effect, this important prediction has never been confronted with experimental data.

In the B-Factory, the collision energy and luminosity are optimized for copious production of B meson pairs, and the energy asymmetry of the electron and positron beams is chosen to optimize the detection of different decay rates for B mesons and antimesons. Execution of this project will permit the very important first experimental test of the Standard Model's explanation of CP violation.

While the primary goal of this project is to study CP violation experimentally as a means of testing the validity of the Standard Model, the B-Factory will also provide an opportunity to pursue a rich program of experiments in a large number of other areas of intense interest in high energy physics. For example, studies of rare decay modes of B mesons will be possible with unprecedented sensitivity, as will measurements of transitions in the bound $b\bar{b}$ (quark-antiquark) system. Charmed mesons and baryons will be produced in abundance, and their decays can be studied in great detail. Copious production of tau/anti-tau pairs will permit a wealth of new and precise measurements of the tau system, including the tau lifetime and a substantial reduction in the upper limit on the tau-neutrino mass. Its high luminosity will also make the B-Factory an ideal place to study final states that can only be reached by two-photon exchange; for example, exotic meson states containing more than two quarks might be discovered. The impact of this broad experimental program will be an exceptionally broad and fundamental test of the validity of the Standard Model.

A B-Factory was considered by and endorsed in 1990 and 1992 by HEPAP Subpanels on the U.S. High Energy Physics Research Program. A DOE Office of Energy Research Committee reviewed the present proposal in March 1991, and found it to be technically sound. The project was also reviewed by the Joint DOE and NSF B-Factory Review Committee in July 1993 as part of the B-Factory site selection process. The report indicated that the cost estimate is credible and that construction could begin in FY 1994.

1. Title and Location of Project: B-Factory
Stanford Linear Accelertor Center (SLAC)

2a. Project No.: 94-G-304
2b. Construction Funded

9. Detail of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 33,000
1. Engineering design and inspection at 26 percent of construction costs, Item c	$ 29,100	
2. Project Management at 3 percent of Construction Costs, Item c	3,900	
b. Land and land rights	0	
c. Construction Costs		111,000
1. Accelerator Facilities	106,200	
2. Utilities	4,800	
d. Contingencies at approximately 23 percent of above costs		33,000
e. Total line item cost (Section 12.a. 1. (a))		177,000
f. Non-Federal Contribution		0 *
Net Federal line item cost		$177,000

*Non-Federal contribution: There is significant foreign involvement in the detector (see Section 12a).

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1. Title and Location of Project: B-Factory
Stanford Linear Accelertor Center (SLAC)

2a. Project No.: 94-G-304
2b. Construction Funded

10. Method of Performance

The B-Factory project is a collaboration of SLAC, Lawrence Berkeley Laboratory (LBL) and Lawrence Livermore National Laboratory (LLNL). It is possible that other laboratories (both U.S. and foreign) may join the project prior to construction especially in the detector area. Design of the technical components will be by the operating contractors, at this time SLAC, LBL, and LLNL. To the extent feasible, construction procurement and installation will be accomplished by fixed-price subcontracts awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	TOTAL
a. Total project costs							
1. Total facility costs							
(a) Line Item	$ 0	$ 13,385	$ 39,470	$ 60,000	$ 47,430	$ 16,715	$177,000
2. Other project costs							
(a) R&D	19,700	5,200	4,400	4,300	1,300	0	34,900
(b) Pre-operations	0	0	0	0	1,300	11,200	12,500
(c) Capital Equip. for R&D	100	300	500	0	0	0	900
(d) Detector (Capital Equip.)	0	100	3,500	10,400	30,000	23,000	67,000
(e) Spares	0	0	0	0	0	900	900
Total other project. costs	19,800	5,600	8,400	14,700	32,600	35,100	116,200
Total project cost	19,800	18,985	47,870	74,700	80,030	51,815	293,200
(f) Non-Federal contribution	0	0	0	0	0	0	0
(g) Net Federal total project cost	$ 19,800	$ 18,985	$ 47,870	$ 74,700	$ 80,030	$ 51,815	$293,200

b. Related annual costs (estimated life of project = 20 years)

1. Power costs for B-Factory	$ 9,100
2. Other operating costs for B-Factory	19,100
Total annual funding (in FY 1999 dollars)	$ 28,200

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1. Title and Location of Project:	B-Factory Stanford Linear Accelertor Center (SLAC)	2a. Project No.: 94-G-304 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Construction Line Item - explained in line items 8, 9, and 10.
   2. Other project costs
      (a) R&D Necessary to Complete: This will provide for the design and development of new components and for the fabrication and testing of prototypes. Includes R&D efforts at SLAC, LBL, LLNL, and for the detector, other potential collaborators. Significant foreign contributions are anticipated at the completion of discussions presently underway.
      (b) Pre-operations: This will include costs for systems checkout, operator training, and a several month commissioning period.
      (c) Capital Equipment: This will include test instruments and other general equipment to support the associated R&D.
      (d) Detector: This includes capital equipment funds for the initial B-Factory detector. There is significant foreign involvement in the detector (see (f) below).
      (e) Spares: Provides for spares of critical technical components with significant delivery times.
      (f) Non-Federal contribution: The total detector costs in 2(d) reflects cost savings of about $20,000,000 resulting primarily from the contribution of detector components and subsystems by non-U.S. collaborating institutions.

b. Related annual costs

   1. Includes power costs to operate the B-Factory.

   2. Includes costs for operations staff, materials, supplies, etc., to operate the B-Factory.

   We assume that when the B-Factory project construction is complete, the SLC based particle physics program will be discontinued. We estimate that when the B-Factory is operational, the overall operating costs at SLAC will be roughly the same as at present (inflation adjusted); therefore, no incremental annual funding is anticipated.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

GENERAL SCIENCE AND RESEARCH - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

HIGH ENERGY PHYSICS

1. Title and Location of Project: Fermilab Main Injector
Fermi National Accelerator Laboratory

2a. Project No.: 92-G-302
2b. Construction Funded

3a. Date A-E Work Initiated: 3rd Qtr. FY 1992

3b. A-E Work (Title I & Title II) Duration: 30 months

4a. Date Physical Construction Starts: 4th Qtr. FY 1992

4b. Date Construction Ends: 3rd Qtr. FY 1999

5. Previous Construction Estimate:
Total Estimated Cost (TEC) -- $229,600
Total Project Cost (TPC) -- $259,300

6. Current Cost Estimate:
TEC -- $229,600
TPC -- $259,300

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1992	$ 15,000	- 3,350 a/	$ 11,650	$ 990
1993	15,000 b/		15,000	9,937
1994	25,000		25,000	27,318
1995	43,000		43,000	36,517
1996	52,000		52,000	48,400
1997	52,000		52,000	52,000
1998	30,950		30,950	38,583
1999	0		0	15,855

a/ Reflects Congressional Rescission of $3,350,000 in FY 1992.
b/ Congressional request for $30,000,000 reduced to $15,000,000 by Congressional action on FY 1993 request.

1. Title and Location of Project:	Fermilab Main Injector Fermi National Accelerator Laboratory	2a. Project No.: 92-G-302 2b. Construction Funded

8. Project Description, Justification and Scope

This project provides for the construction of a new accelerator, called the Fermilab Main Injector, which will replace the aging Fermilab Main Ring in all of its functions. It will provide particles for injection into the existing superconducting Tevatron accelerator, as well as for direct delivery to fixed target experimental and test beam areas. The accelerator is 3.3 km in circumference and it is capable of accelerating either protons or antiprotons to 150 GeV. It employs conventional iron core magnets. Also provided are five new beam transport lines which connect the Main Injector into the existing Fermilab accelerator complex, transport 120 GeV proton beam to the fixed target experimental areas, and provide particle beams for the testing and calibration of detector components and subsystems.

Many technical components will be recycled from the existing Main Ring, including quadrupole magnets, some power supplies and correction magnets, radiofrequency accelerating systems, controls system components, and diagnostic devices.

The Main Injector will be located in the southwest corner of the Fermilab site, and will be connected to the existing Tevatron ring enclosure at its F-Zero straight section.

Specifically provided for in the scope of the project are:

a. Construction of a 3.3 km ring enclosure with ancillary service buildings, and utilities; and the fabrication of new technical components including dipole magnets, high current power supplies, and vacuum systems.

b. Construction of beamline enclosures, service buildings, utilities, and technical components which are required to implement an 8 GeV Booster-to-Main Injector beamline, the 150 GeV proton and antiproton Main Injector-to-Tevatron transfer lines, and a 120 GeV Main Injector-to-Antiproton Production Target beamline.

c. Construction of the technical components required to implement the delivery of 120 GeV beam from the Main Injector to external fixed target and test beam experimental areas, and the construction of a new sub-station and 345KV power lines for distribution of electrical power to the Main Injector location.

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1. Title and Location of Project: Fermilab Main Injector
Fermi National Accelerator Laboratory

2a. Project No.: 92-G-302
2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

d. Modifications to the Tevatron ring enclosure at the F-Zero straight section, for installation of the 150 GeV proton and antiproton transfer lines.

e. Refurbishment and reinstallation in the Main Injector ring enclosure of those technical components which will be reused from the old Main Ring accelerator.

The primary purpose of this project is to greatly increase the Tevatron collider luminosity which can be delivered to the two existing collider detector experimental facilities at Fermilab. Fermilab is the only operational high energy physics facility in the world with sufficiently high energy to produce the top quark, which is the highest mass fundamental particle building block according to our current understanding of the basic structure of matter. Increasing the luminosity of the Fermilab proton-antiproton collider to at least $5x10^{31}cm^{-2}sec^{-1}$ will assure meaningful determination of the properties of the top quark, which has recently been discovered at Fermilab. The project will also significantly increase the number of protons which can be injected into the Tevatron for subsequent acceleration to 800 GeV and then extraction into the existing fixed target and test beam experimental areas, will replace or refurbish the 20 year old components of the existing main ring accelerator, and will eliminate the significant operational problems resulting from the main ring in the same tunnel with the superconducting Tevatron. Other important purposes are to provide a new capability of 120 GeV proton beams which can be used for fixed target physics research, and to provide beams year-round for the testing and collaboration of detector components and subsystems simultaneously with collider operations for physics research.

Increasing the collider luminosity requires increasing both the numbers of protons and of antiprotons injected into the Tevatron. The substantial increases in injection intensities result from the large effective aperture of the Main Injector accelerator and from its high repetition rate capability. These are achieved through tight beam focussing, high magnetic field quality, and elimination of the two vertical overpasses which had to be installed in the Main Ring during the 1980's in order to provide the collider interaction regions. The Main Injector will be capable of accelerating an intense beam of protons to 120 GeV every 1.5 seconds for the purpose of antiproton production, as compared to a 2.4 second cycle for the present Main Ring. The beam intensity which can be injected into the Tevatron by the Main Injector will approach 6×10^{13} protons each 60 second cycle, which is about two times greater than could be achieved with the old Main Ring. The Tevatron antiproton-proton colliding beam luminosity will be increased to at least 5×10^{31} $cm^{-2}sec^{-1}$. These performance goals are expected to be achieved after months of operational experience with the new accelerator.

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1. Title and Location of Project: Fermilab Main Injector
Fermi National Accelerator Laboratory

2a. Project No.: 92-G-302
2b. Construction Funded

9. Details of Cost Estimate*

		Item Cost	Total Cost
a.	Engineering Design Inspection and assembly at 17 percent of construction costs		$28,400
b.	Main Injector construction costs		167,900
	1. Conventional construction	$75,500	
	2. Special facilities	92,400	
c.	Contingencies at 17 percent of above costs		33,300
	Total line item cost		$229,600

* The annual escalation rates assumed for FY 1994 through FY 1998 are 3.3, 3.6, 3.7, 3.7, and 3.6 percent respectively.

10. Method of Performance

Design of facilities will be by the operating contractor and subcontractors as appropriate. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts awarded on the basis of competitive bids.

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I. Title and Location of Project: Fermilab Main Injector
Fermi National Accelerator Laboratory

2a. Project No.: 92-G-302
2b. Construction Funded

II. Schedule of Project Funding and Other Related Funding Requirements

a. Total project funding	Prior Year	FY 1992	FY 1993	FY 1994	FY 1995
1. Total facility costs					
(a) Line item	$ 0	$ 990	$ 9,937	$ 27,318	$ 36,517
Total facility costs	$ 0	$ 990	$ 9,937	$ 27,318	$ 36,517
2. Other project costs					
(a) R&D costs necessary to complete construction	$ 5,400	$ 4,300	$ 6,000	$ 1,700	$ 1,000
(b) Pre-operating costs	0	0	0	0	0
(c) Capital equipment	0	200	100	100	350
(d) Inventories and Spares	0	0	0	0	0
Total other project costs	5,400	4,500	6,100	1,800	1,350
Total project costs	$ 5,400	$ 5,490	$ 16,037	$ 29,118	$ 37,867

a. Total project funding (cont.)	FY 1996	FY 1997	FY 1998	FY 1999	Total
1. Total facility costs					
(a) Line item	$ 48,400	$ 52,000	$ 38,583	$ 15,855	$229,600
	$ 48,400	$ 52,000	$ 38,583	$ 15,855	$229,600
2. Other project costs					
(a) R&D costs necessary to complete construction	$ 0	$ 0	$ 0	$ 0	$ 18,400
(b) Pre-operating costs	0	0	1,000	1,000	2,000
(c) Capital equipment	100	150	0	0	1,000
(d) Inventories and Spares	1,000	3,500	3,800	0	8,300
Total other project costs	1,100	3,650	4,800	1,000	29,700
Total project costs	$ 49,500	$ 55,650	$ 43,383	$ 16,855	$259,300

b. Related annual costs (estimated life of project: 20 years)

1. Power costs for Main Injector slow spill operations	$5,400
2. Experimental areas operating costs for 120 GeV slow spill beam	1,200
Total related annual costs (in FY 1997 dollars)	$6,600

1. Title and Location of Project: Fermilab Main Injector
Fermi National Accelerator Laboratory

2a. Project No.: 92-G-302
2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs

(a) Line item - explained in items 8,9,10

2. Other project costs

(a) Direct R&D operating costs - This will provide for the design and development of new components and for the fabrication and testing of prototypes. R&D on all elements of the project, in order to optimize performance and minimize costs, is concentrated in the early years. Specifically included are the development of the high current dipole magnets and associated power supplies. A small number of Main Injector dipole magnets and power supplies will be fabricated and tested using R&D operating funds.

(b) Pre-operating costs - Includes personnel costs for a several month commissioning period.

(c) Capital equipment - Includes test instruments, electronics, and other general equipment to support 12.a.1 and 12.a.2.a.

(d) Spares and inventories - Provides for special process spares for the major technical components, primarily magnets and power supplies, and for an increase in common use inventories for Main Injector related items.

b. Related annual costs

Total incremental funding requirements - We assume that the Fermilab Tevatron complex will continue both its fixed target and its colliding beam research programs, with each running about 40% of the time on the average. The Main Injector replaces the present Main Ring in all of its functional roles, and it is designed to require about the same amount of power to operate for those purposes. The new Main Injector capability for extracted beam operations simultaneously with Tevatron operations for physics research will require an average increase in power plus other operating costs by about $6,600,000 annually. The operating costs in 12.b reflect the incremental demands of delivering 120 GeV protons to the fixed target experimental areas during Tevatron collider operations.

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NUCLEAR PHYSICS

PROGRAM MISSION

The Nuclear Physics program of the Department of Energy (DOE) has the lead responsibility for Federal support of nuclear physics research and supports fundamental research activities under the mandate provided in Public Law 95-91 which established the Department. The primary Mission of the program is to develop and support the basic research scientists and facilities, and to foster the technical and scientific activities needed to understand the structure and interactions of atomic nuclei, and to understand the fundamental forces and particles of nature as manifested in extended nuclear matter. Atomic nuclei are approximately described as a collection of nucleons (protons and neutrons), bound together by the mechanism of exchange of pions (pi mesons). The research forefront in nuclear physics now requires incorporation of the quark substructure of the nucleon into the understanding of nuclear structure. Quarks, which are the most elemental building blocks of matter, are bound together in groups of three by the exchange of gluons to form the nucleons. Attendant upon this core mission are responsibilities to enlarge and diversify the Nation's pool of technically trained talent, to facilitate transfer of technology and knowledge acquired to support the Nation's economic base, and to provide leadership in the world's cooperative efforts in the peaceful development of science. The program works in close coordination with the Nuclear Physics program at the National Science Foundation (NSF), and jointly with the NSF charters the Nuclear Science Advisory Committee to assist in setting scientific priorities. The programs intent is to be closely aligned with the Administration's science policies as put forward in "Science in the National Interest."

The GOAL of the Nuclear Physics program is to understand the structure of atomic nuclei and the fundamental forces required to hold their constituents in place by a series of systematic scientific investigations.

The OBJECTIVES related to the goal are to:

- o Conduct a program of maximum effectiveness to provide new insights into the nature of energy and matter, based on evaluation by rigorous peer review.

PROGRAM MISSION - NUCLEAR PHYSICS (Cont'd)

- Conceive, develop, construct, and operate world class scientific accelerator facilities in a timely, and effective manner. In the execution of this responsibility together with other Energy Research projects, act as the Nation's leader in developing standards and management techniques to optimize construction and operations of facilities in a cost effective, safe, and environmentally benign way.

- Leverage United States objectives by means of International cooperation through exchanges of scientists and participation in internationally cooperative projects.

- Continue the advanced education and training activities of young scientists to maintain the skills and conceptual underpinning of the Nation's broad array of nuclear based technologies.

PERFORMANCE MEASURES:

1. Ascertain the appropriateness and quality of the entire research program by rigorous peer reviews conducted by internationally recognized scientific experts. Maintain the highest quality research by taking appropriate corrective management actions based on results of the reviews.

2. Use the assistance of technical experts to monitor the performance in scope, costs, and schedule of construction projects. Measure construction project performance against cost and schedule milestones contained in the project plans.

3. Use peer reviews and user feedback to monitor the effectiveness of facility operations. Evaluate facility performance against objectives set in program guidance letters based on funding availability. Measure beam hour availability and user support against guidelines developed for the Scientific Facility User Initiative.

4. Compare overall progress of the field against the scientific priorities recommended in the long range plans that are regularly provided by the DOE/NSF Nuclear Science Advisory Committee (NSAC).

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- CEBAF construction has been completed and the experimental program has begun.

PROGRAM MISSION - NUCLEAR PHYSICS (Cont'd)

- Relativistic Heavy Ion Collider (RHIC) construction at Brookhaven National Laboratory (BNL) has been rebaselined to account for funding reduction in FY 1996. The rebaselining increased the TEC from $475,250,000 to $486,870,000, increased the TPC from $595,250,000 to $616,530,000 and delays completion of the project by 3 months from 2nd Quarter FY 1999 to 3rd Quarter FY 1999. All of the quadrupole and sextupole, and over 70% of the dipole superconducting magnets produced by industry have been delivered, every one delivered to date has substantially exceeded specifications and over one-half of them have been installed in the accelerator tunnel. Progress according to schedule has occurred in the fabrication of RHIC detectors, including the additional experimental equipment recommended by NSAC.

- Completion of the Radioactive Ion Beam (RIB) facility at Oak Ridge National Laboratory (ORNL) permits initiation of the experimental program in astrophysics and unstable nuclei in the summer of 1996.

- The joint US/Canadian Sudbury Neutrino Observatory (SNO) project will be completed in January 1997 to initiate investigation of the solar burning process.

- With transferral of operation of the Clinton P. Anderson Meson Physics Facility (LAMPF) at Los Alamos National Laboratory (LANL) to Defense Programs and termination of the research program in the main experimental area, research efforts have been refocused on thermal and ultra-cold neutron experiments at the Los Alamos Neutron Scattering Center (LANSCE) facility and other experiments on an as-available basis.

- Utilization of the new Gammasphere detector at Lawrence Berkeley National Laboratory (LBNL) has led to the possible discovery of ultra-deformed nuclear states, whose lengths are 3 times as big as their widths.

- Having completed the investigation of anomalous electron-positron pair creation reported by foreign scientists, the APEX detector at Argonne National Laboratory (ANL) will be phased out. Gammasphere will be temporarily relocated to ANL and coupled with the existing mass spectrometer there to take advantage of a timely opportunity for innovative research.

- The Nuclear Physics request includes $140,078,000 to maintain support of the Department's scientific user facilities. Approximately 16% of this amount is associated with the continuation of the science user facilities initiative contained in the FY 1996 budget request. This funding will significantly provide research time for thousands of scientists in universities, Federal agencies, and U.S. companies. It will also leverage both Federally and privately sponsored research consistent with the Administration's strategy for enhancing the U.S. National science investment.

NUCLEAR PHYSICS

PROGRAM FUNDING PROFILE

(Dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Research					
Nuclear Physics	$0	$236,925	-$236,925 a/	$0	$0
Medium Energy Nuclear Physics	122,924	0	97,055	97,055 b/	104,375
Heavy Ion Nuclear Physics	59,764	0	66,630	66,630	70,200
Low Energy Nuclear Physics	23,338	0	26,070	26,070	27,800
Nuclear Theory	14,650	0	14,820	14,820	15,350
Related Capital Funding	35,100	0	32,350	32,350	35,700
Subtotal Research	255,776	236,925	0	236,925	253,425
Construction	71,000	67,575	0	67,575 b/	65,000
Subtotal, Nuclear Physics	326,776	304,500	0	304,500	318,425
Adjustment	-7 c/	0	0	0	0
Total Nuclear Physics	$326,769 d/	$304,500	$0	$304,500	$318,425

a/ Comparability transfers to Medium Energy Nuclear Physics ($97,055,000), Heavy Ion Nuclear Physics ($66,630,000), Low Energy Nuclear Physics ($26,070,000), Nuclear Theory ($14,820,000) and Related Capital Funding ($32,350,000).

b/ In FY 1996 a request will be made to reprogram $2,575,000 from AIP construction to Medium Energy Facility operations ($2,200,000) and AIP operating ($375,000).

c/ Share of General Science and Research general reduction for use of prior year balances assigned to this program on a non-comparable basis.

d/ Excludes $4,508,000 which has been transferred to the SBIR program and $225,000 which has been transferred to the STTR program.

Public Law Authorization:
Pub. Law 95-91, DOE Organization Act (1977)

NUCLEAR PHYSICS
(Dollars in thousands)

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office					
Los Alamos National Laboratory	$39,514	$11,747	$0	$11,747	$10,460
Chicago Operations Office					
Argonne National Laboratory	15,623	15,491	0	15,491	16,220
Brookhaven National Laboratory	99,655	99,320	0	99,320	105,875
Idaho Operations Office					
Idaho National Engineering Laboratory	0	0	0	0	100
Oakland Operations Office					
Lawrence Berkeley National Laboratory	25,685	23,760	0	23,760	24,445
Lawrence Livermore National Laboratory	812	640	0	640	720
Oak Ridge Operations Office					
Continuous Electron Beam Accelerator Facility	69,103	67,375	0	67,375	69,000
Oak Ridge National Laboratory	12,384	13,585	0	13,585	14,385
All Other Sites a/	64,000	72,582	0	72,582	77,220
Subtotal	326,776	304,500	0	304,500	318,425
Adjustment	-7 b/	0	0	0	0
TOTAL	$326,769	$304,500	$0	$304,500	$318,425

a/ Funding provided to universities, industry, other federal agencies and other miscellaneous contractors.
b/ Share of General Science and Research general reduction for use of prior year balances assigned to this program.

NUCLEAR PHYSICS
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995		FY 1996		
		Comparable	Non-Comp	Comparable	Non-Comp	FY 1997
	Direct Funding:					
	Personnel compensation:					
11.1	Full-time permanent					
11.3	Other than full-time permanent					
11.5	Other personnel compensation					
11.8	Special personal services payments					
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits					
13.0	Benefits for former personnel					
21.0	Travel and transportation of persons					
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services					
25.2	Other services					
25.3	Purchases of goods and services from Government accounts	270	270	195	195	165
25.4	Operation and maintenance of facilities	163,588	163,588	138,788	138,788	149,542
25.5	Research and development contracts	16,967	16,967	25,009	25,009	28,778
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment	28,020	28,020	26,250	26,250	26,500
32.0	Land and structures	78,092	78,092	73,688	73,688	74,200
41.0	Grants, subsidies and contributions	40,092	40,092	40,592	40,592	39,240
99.0	Subtotal, obligations	327,029	327,029	304,522	304,522	318,425
	Reimbursable Obligations	-	-	-	-	
99.9	Total Obligations	327,029	327,029	304,522	304,522	318,425
	Recovery of prior year obligations	-97	-97			
	Unobligated balance avail, start of year	-185	-185	-22	-22	0
	Unobligated balance avail, end of year	22	22			
	Budget Authority	$326,769	$326,769	$304,500	$304,500	$318,425

MEDIUM ENERGY NUCLEAR PHYSICS
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The Nuclear Physics Program supports the basic research necessary to identify and understand the fundamental features of atomic nuclei and their interactions. The Medium Energy Nuclear Physics subprogram supports academic fundamental research, and facility operations and research at electron and proton accelerator facilities at the energies of interest to nuclear physics. In addition, the subprogram supports research at accelerators operated by other Department of Energy programs (e.g., High Energy Physics and Basic Energy Sciences) and at other unique domestic or foreign facilities. Two national accelerator facilities are operated entirely under the Medium Energy subprogram - the Continuous Electron Beam Accelerator Facility (CEBAF) in Newport News, Virginia, operated by the Southeastern Universities Research Association, and the Bates Linear Accelerator Center in Middleton, Massachusetts, operated by the Massachusetts Institute of Technology. These accelerator facilities serve a nationwide community of Department of Energy- and National Science Foundation-supported scientists from over 100 American institutions, of which over 90% are universities. Both facilities provide major contributions to American education at all levels and new technical and innovative discoveries which result in important Technology Transfer and services to American industry and medicine. At both CEBAF and Bates, the National Science Foundation has made a major contribution to a new experimental apparatus. A significant number of foreign scientists collaborate in the research programs of both facilities. The planned research program at the new Continuous Electron Beam Accelerator Facility Laboratory, for example, involves 540 scientists from 17 foreign countries; 81 of these scientists are from Conseil Europeen pour la Recherche Nucleaire (CERN) member states. At CEBAF, foreign collaborators have also made major investments in experimental equipment.

The research programs supported at these facilities are ultimately aimed at achieving an understanding of the structure of the atomic nucleus in terms of the quarks and gluons, the objects which apparently combine in different ways to make all the other sub-atomic particles. Just as important is the achievement of an understanding of the "strong force", one of only four forces in nature, which holds the nucleus of the atom together. Research efforts include studies of the role of excited states of protons and neutrons in nuclear structure, investigations of the role of specific quarks in the structure of protons and neutrons, studies of the symmetries in the behavior of the laws of physics, investigations of how the properties of protons and neutrons change when imbedded in the nuclear medium, measurements with beams of electrons or protons whose "spins" have all been lined up in the same direction (polarizing the beams) to determine unique "structure functions" which pin down particular models of nuclear structure, and studies of how particles interact with each other inside the nucleus.

I. **Mission Supporting Goals and Objectives: MEDIUM ENERGY NUCLEAR PHYSICS** (Cont'd)

Beginning, in FY 1996, operation of the Clinton P. Anderson Meson Physics Facility (LAMPF) has been supported by DOE Defense Programs.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Medium Energy Research	$ 41,017	$ 49,755	$ 52,775	$ + 3,020	+ 6.1%
Facility Operations					
Los Alamos Meson Physics Facility	$ 23,450	$ 200	$ 200	0	0.0%
Bates Linear Accelerator Center	9,857	10,200	10,900	+ 700	+ 6.9%
CEBAF	48,600	36,900*	40,500	+ 3,600	+ 9.8%
Total, Medium Energy Nuclear Physics	$ 122,924	$ 97,055*	$ 104,375	$ + 7,320	+ 7.5%

* In FY 1996 a request will be made to reprogram $2,575,000 from AIP construction to Medium Energy Facility Operations ($2,200,000), and AIP operating ($375,000).

III. Performance Summary:

FY 1995 Accomplishments:

MEDIUM ENERGY RESEARCH:

- At the CEBAF laboratory, scientists completed preparations for the Hall C experimental research program. The Hall B CLAS detector magnet has been installed and has been operated at superconducting temperatures.

- At the Bates Laboratory, MIT scientists and collaborators carried out new measurements in the South Experimental Hall using a new polarimeter. Scientists also carried out measurements on the new "SAMPLE" experiment in the North Hall which uses "symmetry violation" to examine specific quark components (strange quarks) in the proton.

III. Performance Summary: MEDIUM ENERGY NUCLEAR PHYSICS (Cont'd)

- At MIT, scientists are completing detectors for use in Hall A at CEBAF. MIT scientists and collaborators carried out measurements with pion beams at the Clinton P. Anderson Meson Physics Facility at Los Alamos National Laboratory, and at the Paul Scherrer Institute in Switzerland.

- MIT scientists have successfully led the U.S. collaboration of university and National Laboratory scientisis in the development and construction of a new detector and target system for the HERMES experiment which commenced at the DESY laboratory in Hamburg, Germany. This experiment is measuring where the "spin" of the proton comes from.

- At Brookhaven National Laboratory, scientists and collaborators have carried out measurements on the shape of the proton using the Laser Electron Gamma Source facility. Results show that the proton is deformed and looks somewhat like a pancake.

- Brookhaven scientists and collaborators at the Alternating Gradient Synchrotron have completed analysis of an effort to search for a predicted particle consisting of six quarks.

- Argonne National Laboratory scientists have completed development of a target system for Hall C experiments at CEBAF; Argonne also has a major collaborative role in the HERMES experiment in Germany. Argonne scientists have completed a major study of the structure of the deuteron at the accelerator in Novosibirsk, Russia.

- At the Clinton P. Anderson Meson Physics Facility at Los Alamos National Laboratory, scientists and collaborators carried out high priority measurements in search of neutrino oscillations. If oscillations are found, then neutrinos would have mass, in disagreement with our present understanding of physics!

- Los Alamos scientists and collaborators prepared to carry out measurements at Fermilab to examine structure in the neutron and proton. Los Alamos scientists and collaborators are planning for a major future program using polarized protons at the Relativistic Heavy Ion Collider which is presently under construction at Brookhaven.

- The university program continued to support a broad program of research in Medium Energy Nuclear Physics utilizing not only all of the accelerator facilities supported under the Medium Energy Program, but also using other U.S. and international accelerator laboratories. Also supported was non-accelerator based research at a number of international sites.

- Funding in the amount of $1,833,000 and $225,000 has been transferred to the SBIR and STTR program, respectively.

III. Performance Summary: MEDIUM ENERGY NUCLEAR PHYSICS (Cont'd)

FACILITY OPERATIONS:

- o CEBAF was completed and work continued on preparations for the experimental program in Hall C. The accelerator operated about 2500 hours for commissioning.

- o The Bates accelerator operated 2310 hours for research. Continuous beam (not pulsed) extraction studies from the new South Hall ring were carried out.

- o The Clinton P. Anderson Meson Physics Facility operated for approximately 2550 hours for research. This was the last year of support for accelerator operations by the Nuclear Physics Program. Future operation of the accelerator will be supported by Defense Programs.

FY 1996 Accomplishments (to date and planned):

MEDIUM ENERGY RESEARCH:

- o At CEBAF, the Hall C experimental research program is underway. Hall A experimental equipment will be complete and the research program begun. The Hall B CLAS detector will be completed and calibration activities will be initiated.

- o At the Bates accelerator, scientists and collaborators will carry out new measurements in the South Experimental Hall using the new polarimeter and newly installed detectors which make measurements outside the scattering plane. Scientists will continue measurements on the "SAMPLE" experiment in the North Hall which uses "symmetry violation" to examine the possibility of specific quark components (strange quarks) in the proton.

- o MIT scientists will complete installation of detectors in the new Hall A twin spectrometers at CEBAF.

- o MIT scientists and collaborators will carry out the HERMES experiment in Hamburg, Germany. This experiment is measuring what components of the proton or neutron determine the "spin" of these particles, an important scientific issue in our present understanding.

- o At Brookhaven National Laboratory, Laser Electron Gamma Source scientists will begin work on detector modifications and a unique hydrogen-ice target which will allow alignment of the "spins" of the proton and the deuteron in the target independently. This will enable a new program to look more deeply into the structure of the proton and neutron.

III. Performance Summary: MEDIUM ENERGY NUCLEAR PHYSICS (Cont'd)

- Brookhaven scientists and collaborators at the Alternating Gradient Synchrotron are pursuing new experiments to look at the behavior of a strange quark in nuclei and to do spectroscopy of other particles. A major part of these efforts involves the installation of large detectors from Los Alamos and Stanford.

- Argonne National Laboratory scientists are beginning a major series of experimental efforts at CEBAF and will continue the HERMES experiment in Germany.

- At the Clinton P. Anderson Meson Physics Facility at Los Alamos National Laboratory, scientists and collaborators may continue the high priority measurements in search of neutrino oscillations if DOE Defense Program operations of LAMPF allows the high intensity proton beam into Area A. If oscillations are found, then neutrinos would have mass, in disagreement with our present understanding of the laws of physics!

- Los Alamos scientists and collaborators will carry out measurements at Fermilab to examine structure in the proton and neutron. Planning is also underway for a major future program using polarized protons at the Relativistic Heavy Ion Collider (RHIC) which is presently under construction at BNL.

- The university program will continue to support a broad program of research in Medium Energy Nuclear Physics utilizing not only all of the accelerator facilities supported under the Medium Energy Program, but also using other U.S. and international accelerator laboratories. Also supported will be non-accelerator based research at a number of international sites.

- Funding in the amount of $1,965,000 and $308,000 has been budgeted for the SBIR and STTR program, respectively.

FACILITY OPERATIONS:

- CEBAF will be operational for research into Hall C. The Hall B and Hall A detectors are still being completed. Accelerator time for research is 3000 hours, but will increase to 4500 hours if proposed reprogramming is approved.

- The MIT/Bates accelerator will operate 2000 hours for research. Both research operations and continuing upgrading of the accelerator complex will be underway.

- The Clinton P. Anderson Meson Physics Facility is no longer operated by the Nuclear Physics Program. Operations will be supported by DOE Defense Programs.

III. Performance Summary: MEDIUM ENERGY NUCLEAR PHYSICS (Cont'd)

FY 1997 Planned Accomplishments

MEDIUM ENERGY RESEARCH:

- At CEBAF, the experimental research program will be fully underway. CEBAF and collaborating scientists will carry out the approved research program, as determined by the CEBAF Program Advisory Committee. Important experiments will include studies of the charge structure of the neutron in Hall C, measurements of the electric form factor of the proton in Hall A, and studies of the excited states of the proton will begin in Hall B.

- At MIT/Bates, MIT scientists and collaborators will carry out new measurements in the South Experimental Hall using the new polarimeter and the new detectors. Continuous, rather than pulsed beams will be available to the South Hall. Efforts to utilize a new internal target in the South Hall ring will be underway. Important experiments will include "symmetry violation" studies on the deuteron and measurements of the transition of the proton to its excited state.

- MIT scientists and collaborators will continue to carry out the HERMES experiment in Hamburg, Germany. This experiment will measure what components of the proton or neutron determine the "spin" of these particles, an important scientific issue in our present understanding.

- At Brookhaven National Laboratory, Laser Electron Gamma Source scientists plan to build a major detector modification and a unique ice target containing polarized hydrogen which will allow polarization of the proton or the deuteron in the target independently. This will enable a new program to look more deeply into the structure of the proton and neutron.

- Brookhaven scientists and collaborators at the Alternating Gradient Synchrotron will be pursuing new experiments to look at the behavior of a strange quark in nuclei and to do spectroscopy of other particles. These efforts involved the installation of large detectors from Los Alamos and Stanford.

- Argonne National Laboratory scientists will be undertaking a major series of experiments at CEBAF and will continue the HERMES experiment in Germany.

- At the Clinton P. Anderson Meson Physics Facility, Los Alamos National Laboratory scientists and collaborators may continue to carry out high priority measurements in search of neutrino oscillations, depending on review of existing results and whether DOE Defense Program operations allows the high intensity proton beam into Area A. If oscillations are found, then neutrinos would have mass, in disagreement with our present understanding of the laws of physics!

III. Performance Summary: MEDIUM ENERGY NUCLEAR PHYSICS (Cont'd)

- Los Alamos scientists and collaborators will carry out measurements at Fermilab to examine structure in the neutron and proton. Planning is also underway for a major program using polarized protons at the Relativistic Heavy Ion Collider which is presently under construction at Brookhaven.

- The university program will continue to support a broad program of research in Medium Energy Nuclear Physics utilizing not only all of the accelerator facilities supported under the Medium Energy Program, but also using other U.S. and international accelerator laboratories. Also supported will be non-accelerator based research at a number of international sites.

- Funding in the amount of $4,073,000 has been budgeted for the SBIR program.

FACILITY OPERATIONS:

- CEBAF will be operational for research in Halls A, B, and C. Accelerator time for research is planned to be 4500 hours.

- The MIT/Bates accelerator will operate 2500 hours for research. Both research operations and continuing upgrading of the accelerator complex will be under way.

- The Clinton P. Anderson Meson Physics Facility (LAMPF) is no longer operated by the Nuclear Physics Program. Operations are supported by DOE Defense Programs.

Explanation of Funding Changes FY 1996 to FY 1997:

- Funding for Bates operation is increased by $700,000 (6.9%) over FY 1996 to increase beam time for research to 2500 hours to take advantage of recently completed unique new facilities.

- The budget request reflects a $3,600,000 increase for CEBAF operations which would increase operating hours from 3000 to 4500. However, if the requested FY 1996 reprogramming of $2,200,000 into CEBAF operations is approved, the FY 1997 CEBAF operations funding provides a cost of living increase and the same number of hours for research in both years (4500).

- SBIR has been increased to $4,073,000 from $1,965,000 in FY 1996. The SBIR allocation is included under Medium Energy Research.

HEAVY ION NUCLEAR PHYSICS
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The Heavy Ion Nuclear Physics subprogram supports research directed at understanding the properties and behavior of atomic nuclei and nuclear matter over a wide range of conditions. These conditions are created in nucleus-nucleus collisions using beams of heavy ions. At low bombarding energies, research is focussed on the study of nuclei which are only gently excited (cool nuclear matter), but taken to their limits of deformation and to their limits of isotopic stability by adding or subtracting protons (or neutrons) to form short-lived, proton-rich (or neutron-rich) nuclei. With higher energy heavy-ion beams very highly excited nuclei (warm nuclear matter) can be formed and studied which are believed to vaporize in a process analogous to the liquid-gas phase transition of heated water. At relativistic energies, the properties of hot dense nuclear matter are studied, with a goal of observing the deconfinement of normal matter into a new form of matter, a quark-gluon plasma. Accelerators located at two universities (Texas A&M and Yale) and three National Laboratories (Argonne, Brookhaven and Berkeley) are supported and maintained by the Heavy Ion Nuclear Physics subprogram for these studies. The National Laboratory facilities are utilized by Department of Energy (DOE), National Science Foundation (NSF) and foreign supported researchers whose experiments undergo peer review by Program Advisory Committees prior to approval for beam time. DOE Heavy Ion Nuclear Physics supported researchers, at both universities and national laboratories, also use NSF and foreign accelerator facilities for their studies.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Heavy Ion Research					
Nuclear Structure and Reaction Studies	$ 15,161	$ 15,655	$ 15,880	$+ 225	+ 1.4%
Relativistic Heavy Ion Studies	23,528	21,770	23,210	+ 1,440	+ 6.6%
Heavy Ion Facility Operations & R&D					
Low Energy (ANL, LBNL, Yale, Texas A&M)	10,675	11,770	12,005	+ 235	+ 2.0%
BNL Tandem/AGS and RHIC Operations	8,690	15,900	17,550	+ 1,650	+ 10.4%
Accelerator R&D	1,710	1,535	1,555	+ 20	+ 1.3%
Total, Heavy Ion Nuclear Physics	$ 59,764	$ 66,630	$ 70,200	$+ 3,570	+ 5.4%

III. Performance Summary:

FY 1995 Accomplishments:

Nuclear Structure and Reaction Studies

- The Gammasphere detector under construction at the Lawrence Berkeley National Laboratory (LBNL) 88-inch Cyclotron initiated experiments with over half its final configuration of gamma-ray detectors and found possible evidence of a previously unobserved nuclear shape.

- Scientists at the LBNL 88-inch Cyclotron demonstrated that short-lived radioactive atoms can be trapped with laser light and initiated experiments studying the fundamental weak interaction.

- At the Argonne Tandem-Linac Accelerator System (ATLAS) facility researchers observed the three heaviest nuclei, thus far known, exhibiting radioactive proton emission and used the APEX detector to measure the production of electron-positron pairs in heavy ion collisions to investigate suggestions of unexpected physics raised in previous measurements in Germany.

III. Performance Summary: HEAVY ION NUCLEAR PHYSICS (Cont'd)

Relativistic Heavy Ion Studies

- Researchers successfully initiated major experiments and performed measurements with relativistic heavy ions at the Alternating Gradient Synchrotron (AGS) at Brookhaven National Laboratory (BNL) and at the Super Proton Synchrotron (SPS) at CERN studying nuclear matter at high temperatures and densities.

- Approximately 250 scientists and students contributed to design and construction efforts on the approved detectors planned for the RHIC facility.

- Funding in the amount of $1,410,000 has been transferred to the SBIR program.

Heavy Ion Facility Operations and R&D

- The ANL ATLAS facility provided 4589 hours of heavy ion beams for experiments involving over 150 scientists and students focussed on nuclear structure and reaction mechanism studies.

- The LBNL 88-inch Cyclotron provided 4665 hours of heavy ion beams for a research program focussed on utilizing Gammasphere for nuclear structure studies and involving over 250 scientists and students. In addition over 400 hours of beam were utilized by over 50 scientists and engineers in an independently supported program to improve the radiation hardness of integrated circuits to be used for space applications.

- The tandem accelerator at Yale University and the superconducting cyclotron at Texas A&M University each provided over 2500 hours of beam for nuclear physics research involving primarily on-campus researchers and students.

- The Tandem/Booster/AGS accelerator complex at BNL provided 595 hours of relativistic energy gold (Au) beams for research and continued activities needed to prepare the facility as an injector for RHIC. The tandem facility, when not being used as an injector for the AGS, was utilized for an independently supported program studying the effects of radiation on integrated circuits in measurements involving over 45 institutions.

- RHIC start-up and inventory funds were used to start liquid helium plant operations, prepare for injection beam line tests, and procure special process, accelerator-component spares. Detector R&D funds were used to develop techniques and prototype units for RHIC detectors.

1300

III. Performance Summary: HEAVY ION NUCLEAR PHYSICS (Cont'd)

FY 1996 Accomplishments (to date and planned):

Nuclear Structure and Reaction Studies

- The Gammasphere detector at the 88-inch Cyclotron at LBNL will be used to make significant advancements in our understanding of the structure of nuclei under conditions of extreme deformation and large angular momentum.
- LBNL scientists at the 88-inch Cyclotron will further develop capabilities for trapping polarized radioactive atoms for experimental tests of the fundamental weak interaction.
- At the ANL ATLAS facility, the structure of short-lived, proton-rich nuclei will be studied and the puzzle of anomalous electron-positron pair production in heavy ion collisions, studied with the APEX detector, is expected to be resolved.
- At the Texas A&M cyclotron measurements studying the compressibility of nuclear matter and at the Yale tandem facility cross section measurements important for astrophysics processes will be carried out by scientists and students.

Relativistic Heavy Ion Studies

- Data obtained from the relativistic heavy ion experiments at the AGS at BNL and SPS at CERN will provide the most severe tests to date of theoretical model calculations of the properties of hot dense nuclear matter.
- An increasing number of scientists and students from universities and national laboratories will be involved in the design and construction of the approved detectors planned for RHIC.
- Funding in the amount of $945,000 has been budgeted for the SBIR program.

Heavy Ion Facility Operations & R&D

- The ANL ATLAS facility will provide 5000 hours of beam for a research program focussed on studies of nuclear structure and reactions.
- The LBNL 88-inch Cyclotron will provide 5000 hours of beam for a research focussed on studies of nuclear structure with Gammasphere. In addition approximately 400 hours of beam time will be utilized for radiation hardening research activities.

III. Performance Summary: HEAVY ION NUCLEAR PHYSICS (Cont'd)

- The tandem accelerator at Yale and the superconducting cyclotron at Texas A&M will each provide 2500 hours of beam for research involving primarily on-campus researchers and students.

- The Tandem/Booster/AGS accelerator complex at BNL will provide 1000 hours of relativistic heavy ion beams for experiments studying the properties of nuclear matter at high temperatures and densities, and continue its preparations to act as the injector for RHIC. The tandem injector will also support an independently funded program on susceptibility of space-based electronic circuits to cosmic ray damage and for production of "micro-pore" filters.

- RHIC start-up and inventory funds will be used to conduct first beam tests of the RHIC injection line, commission the beam distribution system and procure special process spares. The first completed sextant of the collider ring will complete cooldown tests. Commissioning of the cryogenic refrigeration will be completed.

- Accelerator physicists at ANL and LBNL will perform R&D on improving ion source, extraction and transport systems for radioactive ion beams.

1302

FY 1997 Planned Accomplishments:

Nuclear Structure and Reaction Studies

- Gammasphere will continue its nuclear structure research program at the LBNL 88-inch cyclotron for three Quarters. In the 4th Quarter of FY 1997 Gammasphere will be moved for approximately a year to the ANL ATLAS facility for research coupled with existing experimental equipment there.

- The APEX detector at ATLAS will have accumulated sufficient data to have resolved the puzzle of anomalous of electron-positron pair production in heavy ion collisions. Unless unexpected physics appears, APEX operations will be phased out.

- LBNL scientists at the 88-inch Cyclotron will continue studies of the fundamental weak interaction with trapped polarized radioactive atoms and initiate studies focussed on producing and observing "superheavy" nuclei ($A \geq 112$).

- At the Texas A&M cyclotron measurements of the compressibility of nuclear matter and element formation processes relevant to astrophysics, and at the Yale tandem accelerator facility cross section measurements important for nuclear astrophysics will be performed.

III. Performance Summary: HEAVY ION NUCLEAR PHYSICS (Cont'd)

Relativistic Heavy Ion Studies

- At the AGS at BNL and the SPS at CERN several major relativistic heavy ion experiments will continue investigations of the behavior of hot dense nuclear matter and searches for exotic particles.

- An increased number of scientists and students will be involved in the assembly of detectors in the RHIC experimental halls.

- Funding in the amount of $520,000 has been budgeted for the SBIR program.

Heavy Ion Facility Operations & R&D

- The ANL ATLAS facility will provide 4600 hours of beam for an experimental program focussed on nuclear structure and reaction studies.

- The LBNL 88-inch Cyclotron will provide 4700 hours of beam for a research program focussed on the use of Gammasphere for nuclear structure studies. In addition approximately 400 hours of beam time will be utilized for radiation hardening research for space-based electronics packages.

- The tandem accelerator at Yale and the superconducting cyclotron at Texas A&M will each provide 2500 hours of beam for research involving primarily on-campus researchers and students.

- The Tandem/Booster/AGS Accelerator complex at BNL will provide 1000 hours of relativistic gold (Au) beams for experiments studying the properties of nuclear matter at high temperatures and densities and continue its preparations to act as the injector for RHIC. The tandem injector will also support an independently funded program on susceptibility of space-based electronic circuits to cosmic ray damage and for production of "micro-pore" filters.

- RHIC start-up funds will be used to inject beams into a fully instrumented sextant of the RHIC collider ring, a major milestone of the RHIC project. RHIC inventory funds will be used to procure special process spares.

- Accelerator physicists at ANL and LBNL will continue R&D on improving ion source, extraction and transport systems for radioactive ion beams.

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III. Performance Summary: HEAVY ION NUCLEAR PHYSICS (Cont'd)

Explanation of Funding Changes FY 1996 to FY 1997:

- o FY 1997 funding for Heavy Ion Research has been increased by about 4.4% compared to FY 1996.
  - Nuclear Structure and Reaction Studies will get a 1.6% increase over FY 1996.
  - In Relativistic Heavy Ion Studies, $750,000 will be added to BNL for needed buildup of the research program associated with RHIC, and the remaining program will get a roughly cost of living increase (3.2%).
- o FY 1997 funding for Heavy Ion Facility Operations has been increased by about 6.5% compared with FY 1996 levels.
  - The increase of $1,650,000 for BNL Tandem/AGS and RHIC Operations reflects a $150,000 (2%) increase for Tandem/AGS operations and $1,500,000 is the planned increase of pre-operations and inventory funding for the RHIC Project from $8,500,000 in FY 1996 to $10,000,000 in FY 1997.
  - Other facility operations will have a 2.0% increase over FY 1996. Research time available at the 88-inch cyclotron and Atlas accelerator facilities has been somewhat reduced to accommodate the transfer of Gammasphere.

LOW ENERGY NUCLEAR PHYSICS
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The Low Energy Nuclear Physics subprogram supports research directed at addressing issues in nuclear astrophysics, the understanding of the behavior of nucleons at the surface of the nucleus as well as the collective behavior of the entire ensemble of nucleons acting in concert; nuclear reaction mechanisms; and experimental tests of fundamental symmetries. The last of these categories can often be accomplished without the use of accelerators. The study of neutrinos from the sun, whose rate of production is not understood, is an example. University-based research is an important feature of the Low Energy Program. Since most of the required facilities are relatively small, they are appropriate for sitting on university campuses, where they provide unique opportunities for hands-on training of nuclear experimentalists who are so important to the future of this field. Many of these scientists after obtaining their Ph.D.'s, contribute to a wide variety of nuclear technology programs of interest to the DOE. Two such facilities located at two universities (Duke University and the University of Washington) are supported and maintained by the Low Energy Nuclear Physics Program and a Radioactive Ion Beams facility for producing beams of unstable nuclei is being developed at Oak Ridge National Laboratory (ORNL). Included in this sub-program are activities that are aimed at providing information services on critical nuclear data and have as a goal the compilation and dissemination of an accurate and complete nuclear data information base that is readily accessible and user oriented. The activities in this sub-program are conducted in three specific areas: Astrophysics and Fundamental Interactions, Structure of Nuclei, and Facility Operations (Facilities at ORNL, Duke University and the University of Washington as well as the National Nuclear Data Center at Brookhaven National Laboratory (BNL).

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Astrophysics and Fundamental Interactions	$ 6,720	$ 8,587	$ 9,140	$+ 553	+ 6.4%
Structure of Nuclei	8,423	8,362	8,430	+ 68	+ 0.8%
Facility Operations	8,195	9,121	10,230	+ 1,109	+ 12.2%
Total, Low Energy Nuclear Physics	$ 23,338	$ 26,070	$ 27,800	$+ 1,730	+ 6.6%

III. Performance Summary:

FY 1995 Accomplishments:

Astrophysics and Fundamental Interactions

- New reaction measurements using the low beam energies at the Duke University accelerator have led to a sensitive diagnostic tool for probing the mixing of material in the interior of giant stars.

- The international collaboration to measure the solar neutrino flux using the GALLEX facility in Italy has completed a calibration of its system using an intense radioactive source, and has solidly established that there is a 40% deficit of solar neutrinos.

- The joint US-Russian solar neutrino detection project, the Soviet-American Gallium Experiment (SAGE), has also completed a calibration of the detectors using a radioactive source. The final results also showed a deficit of solar neutrinos and agree with the GALLEX results.

- The underlying origin of the solar neutrino deficit will be investigated by a joint US-Canadian project: the Sudbury Neutrino Observatory (SNO). This observatory is in a cavity 70 feet in diameter and 110 feet in height excavated 6,800 feet below the earth's surface. This year the SNO cavity was completed and scrupulously cleaned of residual dust. The major detector at SNO will consist of 11,000 light sensors that are used to detect signals from 1,000 tons of heavy water. The upper portion of the support structure has been completed and 5,500 light sensors have been installed.

- University based measurements of the rate of capture of protons by light nuclei have established a key astrophysical process for the creation of chemical elements process in blue stars.

- Precision measurements of radioactive decay of lithium and boron nuclei provided the most stringent test yet of the theory of this class of nuclear disintegration.

- A new probe of stellar nucleosynthesis has been established with the discovery of new low energy resonances in neutron capture on Barium isotopes at the Oak Ridge Electron Accelerator (ORELA).

- In an effort to resolve discrepancies in the elemental composition of stars in globular clusters that are used to determine the age of the galaxy, measurements have been started on the reaction rates of helium and sodium isotopes.

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III. Performance Summary: LOW ENERGY NUCLEAR PHYSICS (Cont'd)

Structure of Nuclei

- o Using special detectors, proton radioactivity has been discovered in some of the heavy elements, including bismuth.

- o Cold neutrons of extremely low energy provide a unique probe for the investigation of the origin of symmetry in nature. Present research at the National Institutes of Science and Technology's cold-neutron facility has made the most accurate measurements of the fundamental radioactive decay of the neutron, to shed light on the "arrow of time."

- o At San Jose State University, a personal computer-based program for interactively accessing nuclear structure data has been developed and issued for general use.

- o Funding in the amount of $1,265,000 has been transferred to the SBIR program.

Facility Operations

- o The Radioactive Ion Beam facility at ORNL has had its injector installed, tested, and commissioned, and low-intensity commissioning of the facility has been started.

- o ORNL's Radioactive Ion Beam facility personnel have completed transfer of ownership, shipment, and initial stages of installation of the $3,000,000 Daresbury Recoil Separator (DRS) that has been donated by the United Kingdom.

- o The National Nuclear Data Center at Brookhaven, which manages the U.S. part of the international data base, has serviced 81,000 retrievals. The level of services has increased 60% over the average yearly service rate in the past decade.

FY 1996 Accomplishments (to date and planned)

Astrophysics and Fundamental Interactions

- o A new determination of the up-quark and the down-quark mass difference will be done at the Duke University accelerator laboratory using new neutron-neutron scattering measurements.

- o The lower portion of the Sudbury Neutrino Observatory photomultiplier structure will be completed.

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III. Performance Summary: LOW ENERGY NUCLEAR PHYSICS (Cont'd)

- o Production will start on a special array of ^{3}He detectors that will provide an improved neutral current measurement capability at the Sudbury Neutrino Observatory.
- o Construction will be complete for the cold neutron experiment located at the National Institute for Standards and Technology.
- o Theories of the creation of the elements in the Big Bang will be tested by reaction rate measurements on light nuclei using specially built small apparatus at the Colorado School of Mines.

Structure of Nuclei

- o Chaotic effects in the excitation of nuclei will be investigated with definitive experiments.
- o Approaches will be developed for studying nuclei with neutrons to complement data from heavy ion reactions.
- o The nuclear force will be studied in nuclei with abnormally high ratios of protons to neutrons at the ORNL Radioactive Ion Beam Recoil Mass Separator.
- o An updated personal computer data base developed at San Jose State University will allow scientists and engineers to incorporate this program into their own data processing and modelling programs.
- o Funding in the amount of $1,200,000 has been budgeted for the SBIR program.

Facility Operations

- o The ORNL Radioactive Ion Beam facility will go into routine operation as a national user facility with peer reviewed and approved experiments. The facility will operate 1800 hours with an expected 1200 hours of beam on target.
- o The National Nuclear Data Center will implement a major upgrade of its on-line data access system that serves as the USA's commitment to international participation.
- o The National Nuclear Data Center will begin a pilot project to link its Nuclear Science References data base to the American Physical Society's journal so that users can progress from the bibliographic database to full articles and experimental data bases.

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III. Performance Summary: LOW ENERGY NUCLEAR PHYSICS (Cont'd)

FY 1997 Planned Accomplishments:

Astrophysics and Fundamental Interactions

- Newly developed neutral current detectors will be installed at the Sudbury Neutrino Observatory.
- One of the most important reactions in present day nuclear astrophysics, that is crucial to calculations of elemental abundances and energy release in supernova explosions, will be remeasured in order to resolve a long standing discrepancy in existing measurements.
- A new fundamental test of time reversal invariance in nuclei will be made at the National Institute for Standards and Technology using a new innovative technique.

Structure of Nuclei

- Using the high flux of gamma rays from the free election laser at Duke University, a determination will be made of the internal quark and gluon structure of nucleons and pions.
- By combining the use of special detectors and beams at the ORNL Radioactive Ion Beam facility, unique properties of unstable nuclei will be investigated.
- Funding in the amount of $850,000 has been budgeted for the SBIR program.

Facility Operations

- The ORNL Radioactive Ion Beam facility will deliver 2400 hours of radioactive beam for an experimental program and an actinide target will be developed in order to provide neutron rich Radioactive Ion Beams.
- Using newly developed beams at the ORNL Radioactive Ion Beam facility, crucial information about the nuclear force in special nuclei will become available.

Explanation of Funding Changes FY 1996 to FY 1997:

- The increase of $553,000 in the Astrophysics and Fundamental Interactions activities is due to a new program at Lawrence Livermore National Laboratory that utilizes the HERA array at LANSCE and new astrophysics research at ORNL's Radioactive Ion Beam facility and universities.

III. Performance Summary: LOW ENERGY NUCLEAR PHYSICS (Cont'd)

- The increase of $68,000 in the Structure of Nuclei activity is the result of an increase in RIB related research and a decrease due to the mothballing of the TRISTAN project at the High Flux Beam Reactor at BNL.
- The increase of $1,109,000 in the Facility Operations area includes increased costs for the full time operation of the ORNL Radioactive Ion Beam facility and increased responsibilities assigned to the National Nuclear Data Center at BNL.
- Overall FY 1997 funding for research and operation of university facilities supports an approximately continuing level of effort.

NUCLEAR THEORY
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

Theoretical Nuclear Physics is a program of fundamental science research to provide new insight into the observed behavior of atomic nuclei. The understanding of nuclear phenomena is prerequisite to understanding the material foundations of the world around us and in our universe. The research ranges from relating the description of elementary constituent particles and the fundamental forces connecting them, to descriptions of the nucleus as a whole. Theoretical models of the nucleus range from those that treat nucleons as maintaining their identities in orbits within the nucleus (shell models) to those that treat the nucleus as a coherent drop of nuclear fluid (collective models). The long-range objective of the Nuclear Theory subprogram is to obtain a comprehensive understanding of the character and structure of nuclear matter at the most fundamental level in terms of quarks and gluons. This objective is approached by interpreting results from nuclear physics experiments and by predicting new phenomena and relationships amenable to experimental tests. Nuclear theory research at universities and national laboratories entails individual efforts that transcend subcategories of nuclear physics. The selection of the elements of the nuclear theory program is based on the results of anonymous peer reviews by recognized experts in the international nuclear physics community. Much of nuclear theory requires extensive use of supercomputer capabilities and the development of innovative algorithms to use this advanced technology. The graduate students and post-docs supported in the Theoretical Nuclear Physics program are highly trained in technical problem solving techniques and have the flexibility to broadly enhance the nation's scientific and technical literacy. The strength of the nuclear theory effort is enhanced by strong interactions with the international nuclear physics community as well as by nuclear theory efforts supported by other agencies, such as the National Science Foundation. This is particularly true at the National Institute for Nuclear Physics in Seattle, increasingly recognized as a center of world leadership in nuclear theory. In many cases, directors of programs at the Institute come from outside the United States.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Nuclear Theory	$ 14,650	$ 14,820	$ 15,350	$+ 530	+ 3.6%
Total, Nuclear Theory	$ 14,650	$ 14,820	$ 15,350	$+ 530	+ 3.6%

III. Performance Summary:

FY 1995 Accomplishments:

- In FY 1995 theorists found a new way to apply the traditional nuclear shell model can be applied to a significantly expanded range of problems by using a Monte Carlo sampling technique.
- Significant progress was made this year towards the goal of understanding the structure of nucleons with the confirmation by computer studies that much of the character of the forces between quarks can be explained by special configurations of gluons.
- Theories have now been developed for describing collisions of heavy ions at all energies presently being studied experimentally, or that are planned for the future. The theories have been tested by comparison to experiment and found to agree well. The theories applicable to RHIC have now overcome initial conceptual difficulties and are ready to be applied.
- The Institute for Nuclear Theory at the University of Washington was fully staffed and conducted a successful program, acting as a focus center for the development of forefront research concepts.
- A higher quality theory program, better focused on the high priority areas of nuclear physics research, has resulted from the utilization of the findings of the panel review of the entire DOE Nuclear Physics research program conducted in FY 1994.

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FY 1996 Accomplishments (to date and planned):

- Significant progress will be made in extending the nuclear shell model to deal with nuclei under extreme conditions, such as those with large excesses of protons or neutrons. This is important for understanding nucleosynthesis, and will be the subject of experimental studies using radioactive beams at the Radioactive Ion Beam facility.
- Programs appropriate to ultrarelativistic collisions will be developed to predict the behavior of collisions between nuclei at the Relativistic Heavy Ion Collider.
- The Institute for Nuclear Theory at the University of Washington will conduct programs focussed on: Nuclear Structure Under Extreme Conditions, Quark and Gluon Structure of Nucleons and Nuclei, and Nucleosynthesis in the Big Bang, Stars and Supernovae.

III. Performance Summary: NUCLEAR THEORY (Cont'd)

FY 1997 Planned Accomplishments:

- The extension of the nuclear shell model to deal with nuclei under extreme conditions will be complete, and its predictions will be tested by results obtained in experiments using radioactive beams.
- The application of quark models to nucleons will yield accurate values for nuclear sizes and the strengths of their interactions.
- Theories appropriate to ultrarelativistic collisions will give detailed predictions of the results of collisions between nuclei at RHIC. These predictions will allow experiments to be refined to optimize the information that one can obtain about high density matter and the quark gluon plasma.
- The Institute for Nuclear Theory at the University of Washington will conduct programs focussed on: Ultrarelativistic Nuclei; From Nuclear Structure to the Quark-Gluon Plasma, and two on topics which have not yet been announced.

Explanation of Funding Changes FY 1996 to FY 1997:

- Overall FY 1997 funding for research and facility operations has increased by (3.6%), roughly the cost-of-living.
- $50,000 is provided for theoretical support of the MIT Bates facility.

RELATED CAPITAL FUNDING
(Tabular dollars in thousands, Narrative in whole dollars)

Mission Supporting Goals and Objectives:

The Related Capital Funding subprogram provides the necessary equipment that enables the Nuclear Physics program to maintain its vigorous pursuit of scientific opportunities. A major thrust of this subprogram is to provide large experimental devices which complement construction activities at the RHIC facility nearing completion at Brookhaven National Laboratory.

Capital Equipment funds provide for particle detection systems, for data acquisition and analysis systems, and for instrumentation to improve performance of Nuclear Physics accelerators. These funds are essential for effective utilization of the national accelerator facilities operated by the Nuclear Physics program. In addition, the program has landlord responsibility for providing general purpose capital equipment at the Lawrence Berkeley National Laboratory.

General Plant Projects (GPP) provides for minor new construction, for other capital alterations and additions, and for improvements to land, buildings, and utility systems. The Nuclear Physics program provides GPP funds for the Lawrence Berkeley National Laboratory as part of Nuclear Physics' landlord responsibilities for this laboratory.

Accelerator Improvement Projects (AIP) provide for additions, modifications, and improvements to major research accelerators and ancillary experimental facilities. These projects are necessary to maintain and improve the reliability and efficiency of operations, and to provide new experimental capabilities.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment	$ 28,000	$ 26,250	$ 26,500	$+ 250	+ 1.0%
General Plant Project	3,900	3,900	3,800	- 100	- 2.6%
Accelerator Improvement Projects	3,200	2,200*	5,400	+ 3,200	+ 145.5%
Total, Related Capital Funding	$ 35,100	$ 32,350	$ 35,700	$+ 3,350	+ 10.4%

* In FY 1996 a request will be made to reprogram $2,575,000 from AIP construction to Medium Energy Facility Operations ($2,200,000), and AIP operating ($375,000).

III. Performance Summary:

FY 1995 Accomplishments:

- At CEBAF, the very large superconducting toroidal magnet for the CEBAF Large Angle Spectrometer (CLAS) in Hall B was assembled and tested. Some detector components have been installed. A detector package for the High Resolution Spectrometer in Hall A was completed.

- AT BNL's Relativistic Heavy Ion Collider (RHIC), construction continued of the STAR detector's Silicon Vertex Tracker (SVT). This device adds unique capability for the study of strange particle production to the STAR detector. The Nuclear Science Advisory Committee (NSAC) viewed implementing the STAR SVT as having one of the highest priorities. The SVT has a Total Estimated Cost of $6.0 million in actual year dollars and was funded in FY 1995 at $350,000.

- At BNL's RHIC facility, instrumenting of the PHENIX detector's North muon arm continued. This device adds unique measurement capability for muon pair production over a wide kinematic range. NSAC judged that the muon arm was an essential part of PHENIX and thus should be built. The completion of the instrumentation package for the muon arm has a Total Estimated Cost of $11.4 million dollars and was funded in FY 1995 at $350,000.

- At BNL's AGS facility, experimental equipment needed to search for strange quark matter was assembled and the construction of a gold beam dibaryon search experiment was started.

III. Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

- At LBNL, Gammasphere was mounted in its final configuration, and approximately one-half of its 110 detectors were installed and brought into operation. Gammasphere is a world-class, high-resolution, high-granularity, high-efficiency array of gamma-ray detectors that is especially useful for studying nuclear structure at high angular momentum.

- At MIT/Bates, complete a variety of accelerator upgrade activities that improve beam availability.

- At ORNL, the target/ion source on the Radioactive Ion Beam (RIB) injector was completed and was used to accelerate ions through the tandem accelerator.

- In the 6800 ft deep underground site of the Sudbury (Ontario) Neutrino Observatory, the upper half of the 55-ft diameter photomultiplier (PMT) support frame was assembled, and 4700 10-inch diameter PMTs were mounted on the frame. Performance of the prototype neutron counters built from extremely low-radioactivity material was demonstrated and approved for fabrication.

- GPP funding was provided for minor new construction, other capital alterations and addition, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

- AIP funding supported additions and modifications to accelerator facilities that are supported by the Nuclear Physics research program.

FY 1996 Accomplishments (to date and planned)

- At CEBAF complete installation of all detector subsystems on the CLAS detector in Hall B. Complete detector installation and begin tune-up runs with the High Resolution Spectrometers in Hall A. Fabricate liquid hydrogen-deuterium target system for Hall A experiments. Begin major upgrade of the data reduction system to handle massive amounts of raw data.

- At BNL, continue constructing the STAR Silicon Vertex Traker detector with $1,100,000 provided in FY 1996. Final design and prototype tests of silicon drift wafers; begin fabrication of electronics.

III. Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

- At BNL, continue instrumenting the PHENIX North muon arm with $400,000 provided in FY 1996. Complete design and begin fabricating mechanical components of the muon identifier detectors, fabricate muon arm magnet coil.

- At BNL's National Synchrotron Light Source, begin mounting a program of experiments at the LEGS facility that will use a target of frozen heavy and light water.

- At LBNL, complete installation of the remaining detectors for Gammasphere and begin its full experimental program.

- At BNL, provide $1,000,000 to the RHIC construction project to acquire equipment that serves project operations and the experimental programs as part of the rebaselined profile.

- At MIT/Bates, continue installation of the Out-of-Plane Spectrometer (OOPS) and make improvements to the polarized injector.

- At ORNL's Radioactive Ion Beam facility, complete low-intensity commissioning studies and begin the research program. Two large experimental devices, the Recoil Mass Spectrometer and the Daresbury Recoil Separator will be ready for use.

- At the Sudbury Neutrino Observatory, complete assembly of the photomultiplier support frame and install the remaining 4700 photomultiplier tubes. Begin commissioning the data acquisition and analysis system. Complete fabrication of the neutron counters (800 m total length) and transport the counters underground for storage in the non-radioactive environment of the mine.

- GPP funding will be provided for minor new construction, other capital alterations and addition, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

- AIP funding supported additions and modifications to accelerator facilities that are supported by the Nuclear Physics research program.

III. Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

FY 1997 Planned Accomplishments:

- At CEBAF install ancillary equipment items, such as polarized targets, in experimental Hall A and C spectrometer systems. Continue major upgrade of data reduction system to handle massive amounts of raw data. Begin construction of second generation experiments such as spectrometer that is designed to investigate the strange quark content of the proton.

- At CEBAF, carry out improvements in accelerator, injector and cryogenic systems that allow simultaneous three hall operation.

- At BNL, continue constructing the Silicon Vertex Tracker with $2,000,000 planned in FY 1997. Continue fabrication of silicon drift wafers and electronics; begin mechanical assembly.

- At BNL, begin fabricating an electromagnetic calorimeter for the STAR detector. This device adds to the precision of measuring the particles emitted at large angles and thus provides unique information for the study of short-lived neutral reaction products.

- At BNL, continue instrumenting the PHENIX north muon arm at RHIC with $2,650,000 planned in FY 1997. Complete design and begin fabrication of wire-chamber tracking detectors for the muon arm.

- At BNL, provide $1,000,000 to the RHIC construction project to acquire equipment that serves project operations and the experimental programs.

- At ORNL's Radioactive Ion Beam facility, the research program will begin using the Recoil Mass Spectrometer (RMS) and the Daresbury Recoil Separator. A large, high-efficiency gamma-ray detector array for use in conjunction with the RMS will be completed.

- At ANL preparations will be made to install Gammasphere for an experimental program that uses the special properties of the ATLAS beam and the FMA recoil spectrometer.

- At MIT/Bates, upon review begin construction of apparatus needed to conduct a physics program using polarized internal targets in the South Hall Ring.

- At the Sudbury Neutrino Observatory, fill the detector with 1000 tons of heavy water and begin the research program of studying solar neutrinos. Test neutron counters and measure their internal background prior to deployment in the SNO detector.

III. Performance Summary: RELATED CAPITAL FUNDING (Cont'd)

- o GPP funding will be provided for minor new construction, other capital alterations and addition, and for buildings and utility systems. Funding of this type is essential for maintaining the productivity and usefulness of Department-owned facilities and in meeting its requirement for safe and reliable facilities operation. Since it is difficult to detail this type of project in advance, a continuing evaluation of requirements and priorities may result in additions, deletions, and changes in the currently planned projects. The total estimated cost of each project will not exceed $2,000,000.

- o AIP funding will support additions and modifications to accelerator facilities that are supported by the Nuclear Physics research program.

Explanation of Funding Changes FY 1996 to FY 1997:

- o An increase of $1,900,000 in AIP funds at CEBAF provides accelerator improvements that allow simultaneous three hall operation. An increase of $800,000 in AIP funds at MIT/Bates enables an upgrade of the linac RF transmitters. An increase of $400,000 allows construction of advanced ion sources at ANL and LBNL. An increase of $100,000 in AIP funding at other sites results from changes in programmatic priorities.

- o The small changes in Capital Equipment funding (+$250,000) and GPP funding (-$100,000) result from adjustments in these activities.

NUCLEAR PHYSICS

CONSTRUCTION
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

The Construction subprogram funds the necessary activities that enable the Nuclear Physics program to maintain a set of world-leading accelerator facilities that are essential for forefront scientific investigation. The major thrust is completion of the Relativistic Heavy Ion Collider (RHIC) facility and the start of its research program in FY 1999.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Construction					
CEBAF	$ 1,000	$ 0	$ 0	$ 0	0.0%
RHIC	70,000	65,000	65,000	0	0.0%
AIP	0	2,575*	0	- 2,575	- 100.0%
Total, Construction	$ 71,000	$ 67,575	$ 65,000	$- 2,575	- 3.8%

* In FY 1996 a request will be made to reprogram $2,575,000 from AIP construction to Medium Energy Facility Operations ($2,200,000), and AIP operating ($375,000).

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III. Performance Summary:

FY 1995 Accomplishments:

Construction

- o CEBAF construction was completed and accepted by DOE. The accelerator was commissioned, delivering the first five-pass 4 GeV beam in May 1995. Two large spectrometers and their detector systems are ready for experiments in Hall C. All eight very large (up to 500 ton) magnets for the High Resolution Spectrometers in Hall A have been mounted on their carriages.

- o RHIC collider construction continued with about 200 out of 360 large industrially produced superconducting dipole magnets now mounted on their stands in the ring tunnel. Final design of most other collider systems have been completed.

- o Construction of the RHIC STAR detector started with commercial fabrication of the coils and steel structure of the solenoidal magnet, construction of the STAR Assembly Building at the RHIC site, and production of Time Projection Chamber (TPC) components at LBNL.

- o Construction of the RHIC PHENIX detector started with fabrication of steel components nearly complete, and prototyping of detector subsystems taking place at 10 institutions.

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FY 1996 Accomplishments (to date and planned):

Construction

- o RHIC collider construction continues with all large dipole magnets for the arcs of the machine being mounted in the ring tunnel and interconnections begun. Beam tests of the injection beam line will be completed. Begin cooldown of ring in preparation for First Sextant Cooldown Test. Begin construction of long lead-time components of other collider systems.

- o Construction of the RHIC STAR detector continues with occupancy of the STAR Assembly Building, and Counting House. Continue production and assembly of detector subsystems and electronics.

- o Construction of RHIC PHENIX detector continues with installation of magnet components, and fabrication of detector subsystems and electronics.

III. Performance Summary: CONSTRUCTION (Cont'd)

- o AT CEBAF provide a redundant cold compressor to the central cryogenic facility in order to improve the reliability of accelerator operations.

FY 1997 Planned Accomplishments:

Construction

- o RHIC collider construction continues with the finish of all magnet production, with the mounting of magnets in ring tunnel, and with the completion of final design and construction of remaining collider systems.
- o Construction of RHIC STAR detector continues with testing of subsystems at LBNL, completion of assembly of all magnet and support structure, and completion of fabrication of electronics.
- o Construction of RHIC PHENIX detector continues with installation, testing and mapping of magnets. Start installation of detectors in central arm.

Explanation of Funding Changes FY 1996 to FY 1997:

- o No change in construction funding for RHIC.
- o The decrease of $2,575,000 is associated with no request of funds for AIP construction projects with TEC's in excess of $2,000,000.

NUCLEAR PHYSICS

CAPITAL OPERATING EXPENSE & CONSTRUCTION SUMMARY
(Dollars in thousands)

Capital Operating Expenses	FY 1995	FY 1996	FY 1997	$ Change	% Change
General Plant Projects (Total)	$ 3,900	$ 3,900	$ 3,800	$ - 100	- 2.6%
Capital Equipment (Total)	28,000	26,250	26,500	+ 250	+ 1.0%
Accelerator Improvement Projects (Total)	3,200	2,200	5,400	+ 3,200	+ 145.5%

Construction Project Summary (both Operating and Construction Funded)

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Unapprop. Balance
87-R-203	Continuous Electron Beam Accelerator Facility, CEBAF	$313,200	$312,200	$ 1,000	$ 0	$ 0	$ 0
91-G-300	Relativistic Heavy Ion Collider, BNL	486,870	210,850	70,000	65,000	65,000	76,020
96-G-302	Accelerator Improvements and Modifications various locations	2,575	0	0	2,575*	0	0
	Total Nuclear Physics	--	$523,050	$71,000	$67,575	$65,000	$76,020

Major Items of Equipment (CE $2 Million and Above)

	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Acceptance Date
1. Silicon Vertex Tracker	$ 6,000	$ 100	$ 350	$ 1,100	$ 2,000	FY 1999
2. Muon Arm Instrumentation	11,400	50	350	400	2,650	TBD

* In FY 1996 a request will be made to reprogram $2,575,000 from AIP construction to Medium Energy Facility Operations ($2,200,000) and AIP operating ($375,000).

NUCLEAR PHYSICS

1. Title and location of project: Relativistic Heavy Ion Collider
Brookhaven National Laboratory
Upton, New York

2a. Project No. 91-G-300
2b. Construction Funded

SIGNIFICANT CHANGES

- TEC increased from $475,250,000 to $486,870,000 because of a directed change reducing FY 1996 Construction funding.
- TPC increased from $595,250,000 to $616,530,000 because of a directed change reducing FY 1996 Construction funding.
- Completion date of 2nd quarter FY 1999 changed to 3rd quarter FY 1999 because of a directed change reducing FY 1996 Construction funding.
- Funding Change:

  FY 1996 Construction funding was reduced from $70,000,000 to $65,000,000.
- Project Scope has not changed.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

GENERAL SCIENCE AND RESEARCH - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

NUCLEAR PHYSICS

1. Title and location of project: Relativistic Heavy Ion Collider
Brookhaven National Laboratory
Upton, New York

2a. Project No. 91-G-300
2b. Construction Funded

3a. Date A-E Work Initiated: 1st Qtr. FY 1991

3b. A-E Work (Title I & II) Duration: 6 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $475,250
Total Project Cost (TPC) -- $595,250

4a. Date Physical Construction Starts: 2nd Qtr. FY 1991

4b. Date Construction Ends: 3rd Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $486,870
TPC -- $616,530

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
FY 1991	$ 15,000	- 1,500 a/	$ 13,500	$ 6,000
FY 1992	49,350		49,350	23,265
FY 1993	71,400	- 1,400 b/	70,000	60,839
FY 1994	78,000		78,000	82,244
FY 1995	70,000		70,000	86,600
FY 1996	65,000		65,000	77,000
FY 1997	65,000		65,000	68,000
FY 1998	59,400		59,400	64,400
FY 1999	16,620		16,620	18,522

a/ Reflects the reduction of funds resulting from the FY 1991 sequester and general reduction.
b/ Application of a portion of the FY 1993 General Science and Research general reduction of $30,000,000 for use of prior year balances.

1. Title and location of project: Relativistic Heavy Ion Collider
Brookhaven National Laboratory
Upton, New York

2a. Project No. 91-G-300
2b. Construction Funded

8. Project Description, Justification and Scope

The FY 1996 Congressional Appropriation reduced construction funding from $70 million to $65 million. This reduction was partially offset by an additional $2.5 million in operating and $1 million in capital equipment funding. These funding actions result in a 3 month delay in the project completion date from the second quarter of FY 1999 to the third quarter of FY 1999 and increase the TEC and TPC. The TEC has increased from $475,250,000 to $486,870,000. The TPC has increased from $595,250,000 to $616,530,000. The increase in cost covers the support of core personnel essential for subsequent operations, stretch-out costs associated with revised work schedules to accommodate the funding profile, and escalation on the FY 1996 reduction, which is to be restored in FY 1999.

The Relativistic Heavy Ion Collider (RHIC) facility will be a unique, world-class research facility with opposing colliding beams that provides collision energies of 100 GeV/AMU per beam for heavy ions as massive as gold. RHIC will use the existing Alternating Gradient Synchrotron (AGS) and Tandem Van de Graaff complex as an injector. The new accelerator will be built in the existing Colliding Beam Accelerator (CBA) tunnel (3.8 km circumference), and will utilize the experimental halls, support building and liquid helium refrigerator from the partially completed CBA project.

The collider consists of two rings of superconducting magnets for accelerating and storing beams at variable energies up to 100 GeV/AMU for the heaviest ions. The collider will have the flexibility of using the full range of ion species from protons to gold which will be available from the AGS. With protons, energies of up to 250 GeV in each beam are expected. The capability for collisions between different masses in each ring will be provided. The collider is expected to have an average luminosity (a measure of the collision rate) of about 10^{26} cm^{-2} sec^{-1} for gold-on-gold collisions at full energy.

Most of the conventional construction for the collider exists, including a ring tunnel and an operating helium refrigeration system. The existing Collider Center (50,000 sq. ft. of usable area) will contain the accelerator control center, offices, technical shops, and refrigeration plant.

The existing tunnel configuration provides for six experimental areas where the circulating beams cross. Three of the experimental areas presently have completed experimental halls and support buildings for utilities. Another experimental area is an "open area" complete with support buildings and is suitable for experiments that use internal stationary targets. New construction is needed at two areas to close gaps in the ring. The standard tunnel cross section and support buildings will be constructed. Some general site work such as the paving of roads and the stabilization of the berm will also be provided.

1. Title and location of project: Relativistic Heavy Ion Collider Brookhaven National Laboratory Upton, New York	2a. Project No. 91-G-300 2b. Construction Funded

8. Project Decscribtion, Justification and Scope (Continued)

The funds requested will provide an initial complement of research detectors at beam intersection regions necessary for the first-round research program with the high-energy heavy-ion collider.

RHIC is a two-ring colliding beam accelerator dedicated to the study of nuclear matter at very high temperatures and densities where the quark-gluon degrees of freedom are expected to be directly revealed. The purpose of RHIC is to accelerate, store, and bring into collision two circular beams of very high energy heavy ions. For the heaviest ions (e.g., nuclei of gold atoms) the energies will range up to 100 GeV/AMU in each of the two colliding beams, providing a total collision energy which exceeds by more than an order of magnitude the capability of any other existing or proposed accelerator of heavy nuclear beams.

In such collisions experimenters will be able to study extended volumes of nuclear matter with energy densities greater than 10 times that of the nuclear ground state, achieving conditions of temperature and density at which this matter loses its identity as a collection of neutrons and protons and is predicted to undergo a phase transition to a plasma of quarks and gluons. This state of matter has not yet been observed. Its existence and properties are predicted by the theory of Quantum Chromodynamics (QCD), the theory of the strong interaction which has been developed over the past two decades of progress and discovery in high energy and nuclear physics.

At present the highest energy man-made heavy ion collisions are achieved with nuclear beams impinging on stationary targets, utilizing the Brookhaven AGS and CERN Super Proton Synchrotron accelerators. Recent experiments at these facilities have confirmed expectations that very energetic collisions produce increased densities and temperatures in nuclear matter. These experiments support the predictions that at much higher energies, which can be achieved only with the colliding beams of heavy ions at the RHIC facility, the most extreme temperatures and energy densities are produced in bursts of particles formed purely from the energy in the collision. These are the sought-for thermodynamic conditions which can be directly compared with QCD calculations, and which approximate the conditions that existed before the universe condensed from a plasma of quarks and gluons to a gas of hadrons.

RHIC is designed to meet the requirements for carrying out a wide-ranging program of experiments which will open up the heretofore unexplored physics of hot dense nuclear matter and to isolate and study the new states of matter thus created. These requirements are not met by any other existing or proposed high energy colliding beams facility, all of which are designed for the acceleration of light, singly-charged particles such as protons, antiprotons, or electrons.

1. Title and location of project	Relativistic Heavy Ion Collider Brookhaven National Laboratory Upton, New York	2a. Project No. 91-G-300 2b. Construction Funded	

9. Details of Cost Estimate		Item Cost	Total Cost
a. Engineering design inspection and administration of item b			$ 83,982
1. Engineering, design and inspection at 18% of construction costs		$ 50,172	
2. Construction management at 12% of construction costs, item b		33,810	
b. Construction Costs			279,920
1. Conventional Construction		9,640	
a. Site Improvement	1,160		
b. Tunnels and Buildings	6,260		
c. Utilities	2,220		
2. Technical Components - Collider		270,280	
a. Collider Installation	31,120		
b. Magnet System	141,240		
c. Magnet Electrical System	11,640		
d. Cryogenic System	20,390		
e. Vacuum System	10,750		
f. Injection System	11,370		
g. Beam Dump System	6,030		
h. RF System	12,140		
i. Beam Instrumentation	11,080		
j. Control System	12,260		
k. Safety System	2,260		
c. Contingencies on Collider at approximately 2.2 percent of above costs			7,968
Subtotal			$371,870
d. Research Detectors (including EDIA and Contingency)			115,000
Total line item costs			$486,870

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1. Title and location of project:	Relativistic Heavy Ion Collider Brookhaven National Laboratory Upton, New York	2a. Project No. 91-G-300 2b. Construction Funded

10. Method of Performance

This type of construction project is a unique facility and therefore the design, assembly and testing will be done by the staff of the Brookhaven National Laboratory (with the assistance of an architectural-engineering (A-E) firm). Component parts, wherever possible, will be fabricated by industry under fixed-priced, competitively obtained, procurement actions. Some components may be fabricated in the existing shops at BNL. Building design will be on the basis of a negotiated A-E contract, and its construction will be by a competitively obtained lump-sum contract.

11. Schedule of Project Funding and Other Related Funding Requirements

a. Total project costs	Prior Years	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995
1. Total Facility Cost						
Construction line item	$ 0	$ 6,000	$23,265	$60,839	$ 82,244	$86,600
Total facility cost	$ 0	$ 6,000	$23,265	$60,839	$ 82,244	$86,600
2. Other project costs						
a. R&D necessary to complete construction	$21,450	$ 6,614	$ 7,000	$ 7,200	$ 5,880	$ 3,620
b. Start-up, Invent. & Equip.	0	0	0	0	0	2,200
Total other project costs	$21,450	$ 6,614	$ 7,000	$ 7,200	$ 5,880	$ 5,820
Total project cost	$21,450	$12,614	$30,265	$68,039	$ 88,124	$92,420

a. Total project costs	FY 1996	FY 1997	FY 1998	FY 1999	Total
1. Total Facility Cost					
Construction line item	$77,000	$68,000	$64,400	$18,522	$486,870
Total facility cost	$77,000	$68,000	$64,400	$18,522	$486,870
2. Other project costs					
a. R&D necessary to complete construction	$ 0	$ 0	$ 0	$ 0	$ 51,764
b. Start-up, Invent. & Equip.	9,500	11,000	19,000	36,196	77,896
Total other project costs	9,500	11,000	19,000	36,196	129,660
Total project cost	$86,500	$79,000	$83,400	$54,718	$616,530

1. Title and location of project: Relativistic Heavy Ion Collider
Brookhaven National Laboratory
Upton, New York

2a. Project No. 91-G-300
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements (Continued)

b. Related annual funding requirements (FY 1999 dollars)

1. Annual RHIC Facility Operating Costs	$49,400
2. Annual Injector Operating Costs	
AGS	19,300
Booster	3,200
Tandem	2,300
Total facility operating costs	$74,200
3. Annual plant and capital equipment costs related to facility operations	4,700
Total related annual funding *	$78,900

* Not all of these costs are incremental.

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
Explained in items 8, 9 and 10.

2. Other project costs
a. R&D necessary to complete construction

This included supporting R&D work on critical accelerator components before and during the construction phase. The funds covered the development of full-length (9.7 m) dipole magnets, quadrupole magnets, insertion magnets, and trim/correction spool pieces.

This also included R&D necessary for research detectors. Tests were needed to determine detailed parameters required for large-scale detectors for the heavy-ion experimental facilities, and a continued effort to develop new techniques of detection and read-out for improved utilization of the collider facility.

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1. Title and location of project: Relativistic Heavy Ion Collider
Brookhaven National Laboratory
Upton, New York

2a. Project No. 91-G-300
2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (Continued)

b. Related annual funding requirements (FY 1999 dollars)

These funds are needed for operation training of crew, early testing and check-out of various systems, as well as to establish a special process spares inventory as their construction is completed. Capital equipment is identified within other project costs for acquiring equipment to serve project operations and the experimental program. Portions of the cryogenic system and the beam injection system reached operational status in FY 1996.

b. Related annual costs (Estimated life of the facility: 20 years)

1. RHIC facility operating costs assume 38 weeks of operation with appropriate manpower, material, and support services associated with the research program. For this estimate, four experimental areas are assumed in use.

2. Injector operating costs assume that the Tandem/AGS injector complex is not being used for any function other than as the RHIC injector.

3. This item includes plant and capital equipment needed to maintain the research capability of the facility to evolving research requirements as well as funds for accelerator improvement projects and minor general plant projects required to ensure its continued high performance.

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GENERAL SCIENCE PROGRAM DIRECTION

PROGRAM MISSION

This program provides the Federal staffing resources and associated funding to plan, direct, and manage a viable, high quality national program of basic research in the fields of high energy physics and nuclear physics in support of the Nation's goals to support basic scientific research. It supports the staff in the Office of the Associate Director for High Energy and Nuclear Physics, the High Energy Physics Division, the Nuclear Physics Division, and associated program and management support staff in the Headquarters. This program also provides program-specific staffing resources at the Chicago, Oakland, and Oak Ridge Operations Offices to support high energy and nuclear physics activities carried out by those offices.

The Department of Energy provides over 90 percent of the Federal support, and serves as the Executive Agent, for the Nation's high energy physics program. Nearly 90 percent of the total Federal support of basic nuclear physics research is provided through the nuclear physics program. The staff develop program plans and budgets and execute approved programs. They support, plan, and provide for construction, maintenance, and operation of the large facilities on which research in high energy physics and nuclear physics depends. They oversee the operation of large and complex accelerator facilities which are used by qualified physicists throughout the Nation, provide technical oversight of the high energy physics and nuclear physics research programs at 15 major laboratories and well over one hundred universities throughout the Nation, and interact with other Federal agencies. In carrying out these responsibilities, the staff funded by General Science Program Direction assess the research and facility needs of these programs with the advice and assistance of the High Energy Physics Advisory Panel (HEPAP) and the DOE/NSF Nuclear Science Advisory Committee (NSAC), participate actively in their meetings, and provide program and administrative support for their operation. The staff work in close cooperation with the Oak Ridge Operations Office on Superconducting Super Collider (SSC) termination activities.

The staff also participate in cooperative programs with Japan, Germany, CERN Laboratory (Geneva, Switzerland) member countries, China, the former Soviet Union, Spain, Italy, France, The Netherlands, and Canada.

PROGRAM MISSION - GENERAL SCIENCES PROGRAM DIRECTION (Cont'd)

Program direction has been divided into five categories: salaries and benefits, travel, support services, Working Capital Fund and other related expenses. Support services refers to program direction funded support service contracts that provide necessary support functions to the Federal staff, such as computer systems development, training, technical support, mailroom, etc. Working Capital Fund costs include goods and services provided centrally by the Department at Headquarters. Other related expenses relates to other administrative costs of maintaining Federal staff, such as building and facility costs and utilities in the field and information technology expenses.

The goal of General Science Program Direction is to fund the management of programs which provide new insights into the nature of energy and matter to better understand our natural world.

The objectives related to these goals are: to utilize the peer review process for ongoing and proposed research activities and enhance international involvement and to champion the recommendations of the High Energy Physics Advisory Panel's "Future Vision Subpanel" as the new direction for high energy physics and the Long-Range Plan for Nuclear Science as updated by the Interagency Nuclear Science Advisory Committee (NSAC).

PERFORMANCE MEASURES:

Responsiveness to national science policy and initiatives.

Improvement in environment, safety and health compliance.

Provision of new and enhanced research facilities and equipment.

Increase in facility operating time.

Continued improvement in the utilization of staffing, travel and support contractor funds.

Expansion of international collaborative efforts.

PROGRAM MISSION - GENERAL SCIENCES PROGRAM DIRECTION (Cont'd)

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Continuing to manage almost the entire U.S. program in high energy and nuclear physics, including annual budgets of nearly $1 billion, with outstanding success and with relatively small staffing levels and program direction costs compared to research programs both within and outside the Department.
- Increased productivity at high energy and nuclear physics facilities as part of the FY 1996 Scientific Facilities Initiative.
- CEBAF became operational. Construction completed on schedule and within budget.
- International efforts increased with particular progress on Large Hadron Collider participation.
- Substantial progress on Main Injector, B-Factory and Relativistic Heavy Ion Collider construction.
- Sudbury Neutrino Observatory (SNO) Detector fabrication progressing, with completion and initiation of operations scheduled for FY 1997.
- Complete disposition of assets resulting from SSC termination.

GENERAL SCIENCE PROGRAM DIRECTION

PROGRAM FUNDING PROFILE

(Dollars in thousands)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Activity					
Operating Expenses	$10,300	$9,500	$0	$9,500	$10,400
Working Capital Funds	1,100	0	1,150 a/	1,150	1,200
Total, General Science Program Direction	$11,400	$9,500	$1,150	$10,650	$11,600
Staffing (FTEs)					
HQ FTEs	63	59	0	59	57
Field FTEs	33	33	0	33	33
Total FTEs	96	92	0	92	90
Previously Funded SSC FTE's b/	39	22	0	22	9

a/ Comparability adjustment of $1,150,000 from Departmental Administration of Working Capital Funds.
b/ SSC FTE's funded from previous years' appropriations for the SSC.

Public Law Authorizations:
Pub. Law 95-91, DOE Organization Act.

GENERAL SCIENCE PROGRAM DIRECTION
PROGRAM OBJECT CLASS SUMMARY
(Dollars in thousands)

		FY 1995		FY 1996		
		Comparable	Non-Comp	Comparable	Non-Comp	FY 1997
	Direct Funding:					
	Personnel compensation:					
11.1	Full-time permanent	8,108	$5,464	$8,014	$6,240	$6,478
11.3	Other than full-time permanent	262	111	137	62	118
11.5	Other personnel compensation	296	235	216	186	348
11.8	Special personal services payments	0	0	0	0	0
11.9	Total personnel compensation	8,666	5,810	8,367	6,488	6,944
12.1	Civilian personnel benefits	1,881	1,024	1,937	1,377	1,281
13.0	Benefits for former personnel	241	128	175	75	250
21.0	Travel and transportation of persons	958	616	717	567	552
22.0	Transportation of things					
23.1	Rental payments to GSA					
23.2	Rental payments to others					
23.3	Communications, utilities, and miscellaneous charges					
24.0	Printing and reproduction					
25.1	Advisory and assistance services	3,729	2,255	3,274	1,294	585
25.2	Other services	1,355	569	1,480	849	788
25.3	Purchases of goods and services from Government accounts	1,100 a/		1,150 a/		1,200 a/
25.4	Operation and maintenance of facilities					
25.5	Research and development contracts					
25.7	Operation and maintenance of equipment					
26.0	Supplies and materials					
31.0	Equipment					
32.0	Land and structures					
41.0	Grants, subsidies and contributions					
99.0	Subtotal, obligations	17,930	10,402	17,100	10,650	11,600
	Reimbursable Obligations	-	-	-		
99.9	Total Obligations	17,930	10,402	17,100	10,650	11,600
	Recovery of prior year obligations	-1	-1	0	0	0
	Unobligated balance avail, start of year	-11,228	-1,251	-6,450	-1,150	0
	Unobligated balance avail, end of year	4,699	1,150	0	0	0
	Budget Authority	$11,400	$10,300	$10,650	$9,500	$11,600

a/ Working Capital Fund

I. Mission Supporting Goals Ongoing Responsibilities:

This program provides the Federal staffing resources and associated funding to plan, direct, and manage a viable, high quality national program of basic research in the fields of high energy physics and nuclear physics to ensure U.S. competitiveness in basic research. It supports the staff in the Office of the Associate Director for High Energy and Nuclear Physics, the High Energy Physics Division, the Nuclear Physics Division, and associated program and management support staff both in the Headquarters and at Chicago, Oakland, and Oak Ridge Operations Offices.

Beginning in FY 1997, program organizations are contributing to a Working Capital Fund to cover the costs of centrally provided goods and services such as supplies, housing, utilities, etc., which previously were budgeted in Departmental Administration. $1,200,000 has been included in FY 1997 request for General Sciences Program Direction for the Working Capital Fund. Appropriate amounts have been included in the FY 1995 and FY 1996 Comparable Appropriation columns to reflect this change.

II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Chicago					
Salary and Benefits	1,484	1,533	0	1,533	1,595
Travel	75	65	0	65	63
Support Services	165	140	0	140	135
Other Related Expenses	181	88	0	88	87
Total	$1,905	$1,826	$ 0	$1,826	$1,880
Full Time Equivalents	18	18	0	18	18
Average	$ 106	$ 101	$ 0	$ 101	$104

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II. Funding Table: (Cont'd)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Oakland					
Salary and Benefits	619	552	0	552	616
Travel	40	32	0	32	32
Support Service	29	33	0	33	30
Other Related Expenses	121	47	0	47	47
Total	$ 809	$ 664	$ 0	$ 664	$ 725
Full Time Equivalents	7	7	0	7	7
Average	$ 116	$ 95	$ 0	$ 95	$ 104
Oak Ridge					
Salary and Benefits	649	650	0	650	677
Travel	105	70	0	70	67
Support Services	0	0	0	0	0
Other Related Expenses	225	154	0	154	100
Total	$ 979	$ 874	$ 0	$ 874	$ 844
Full Time Equivalents	8	8	0	8	8
Average	$ 122	$ 109	$ 0	$ 109	$ 106

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II. Funding Table (Cont'd):

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Headquarters					
Salary and Benefits	5,202	5,205	0	5,205	5,587
Travel	565	400	0	400	390
Support Services	660	431	0	431	420
Working Capital Fund	1,100	0	1,150	1,150	1,200
Other Related Expenses	180	100	0	100	554
Total	$7,707	$6,136	$1,150	$ 7,286	$8,151
Full Time Equivalents	63	59	0	59	57
Average	$ 122	$ 104	$ 0	$ 123	$ 142
Total Energy Research					
Salary and Benefits	7,954	7,940	0	7,940	8,475
Travel	785	567	0	567	552
Support Services	854	604	0	604	585
Working Capital Fund	1,100	0	1,150	1,150	1,200
Other Related Expenses	707	389	0	389	788
Total	$11,400	$9,500	$1,150	$10,650	$11,600
Full Time Equivalents 1/	96	92	0	92	90
Average	$ 118	$ 104	$ 0	$ 116	$ 129
Adjustment:	0	0	0	0	0
Budget Authority	11,400	9,500	0	10,650	11,600

1/ Excludes FTEs for terminating the Superconducting Super Collider (SSC) which are being funded from previous years' appropriations for the SSC.

III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION

FY 1995 Accomplishments:

- o Provided personal compensation including salaries and personnel benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 96 FTEs in the Office of High Energy and Nuclear Physics and related program and administrative support staff at Headquarters and the field.

- o The high energy physics staff provided continued program direction of the high energy physics program and of high energy physics accelerator centers at Fermilab, Stanford Linear Accelerator Center (SLAC) and Brookhaven National Laboratory (BNL).

- o Provided technical control and program direction for high energy physics research programs at nine major laboratories and managed more than 100 university research tasks to ensure the efficient operation and strong utilization of the large and complex high energy physics facilities and research capabilities.

- o Provided program direction of the Fermilab Main Injector and B-Factory projects.

- o Provided program direction of experimental and theoretical research and test-bed exploration of very promising new advanced accelerator concepts.

- o Maintained foreign liaison for conduct of experiments at foreign accelerators, and program direction of the L3 detector at CERN; and increased participation with CERN member countries on the Large Hadron Collider (LHC).

- o The nuclear physics staff provided technical program direction of the nuclear physics research programs at 12 national laboratories.

- o Managed more than 150 active Nuclear Physics grants and numerous research proposals and provided technical and project management direction including completion of CEBAF construction and preparation for operations.

- o Supported construction of the Relativistic Heavy Ion collider (RHIC) at BNL, including support of university participation in detector design and fabrication, and major equipment projects.

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III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

- o Completed Gammasphere and continued work on the joint U.S./Canadian SNO detector.
- o Provided support to the Nuclear Theory Institute.
- o Provided support to ongoing R&D programs at university facilities and directed a significant university user experimental research program.
- o Managed the Nuclear Data program.
- o Provided program direction of international cooperative efforts in the nuclear physics program.
- o Provided additional direct program support at Chicago Operations Office, specifically at the Fermilab site and in support of RHIC at Brookhaven. Continued on-site support at the Stanford Linear Accelerator Center and CEBAF.
- o Provided environmental, safety, and health support for the high energy and nuclear physics accelerator facilities and completed the transfer of LAMPF to Defense Programs.
- o Continued to manage the disposition of SSC assets and worked closely with Oak Ridge Operations Office staff on SSC termination activities.

FY 1996 Accomplishments (to date and planned):

- o Provide personal compensation including salaries and personnel benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 92 FTEs in the Office of High Energy and Nuclear Physics and related program and administrative support staff at Headquarters and the field.
- o Continue program direction of the High Energy Physics program including research and facility operations.
- o Continue contract management of physics research.

III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

- o Continue program direction to ensure the safe management, efficient operation and strong utilization of the large and complex high energy and nuclear physics facilities and research capabilities.
- o Continue program direction of the Fermilab Main Injector and B-Factory projects.
- o Provide program direction of experimental and theoretical research carried out by university-based scientists and test-bed exploration of very promising new advanced accelerator concepts.
- o Maintain foreign collaborative programs for conduct of experiments at foreign accelerators, and program direction of the L3 detector.
- o Continue negotiations with CERN member countries leading to a formal agreement with CERN on the LHC and renew the agreements for cooperation with Russia and China.
- o Continue program direction of the nuclear physics program.
- o Provide program direction to the CEBAF laboratory and operation of the accelerator for research.
- o Support construction of the RHIC, including support of university participation in detector design and fabrication, and major equipment projects.
- o Continue fabrication of the Joint U.S./Canadian SNO detector.
- o Continue to support and provide program direction to the Nuclear Theory Institute.
- o Continue to support ongoing research and development programs at university facilities and direct a significant university user experimental research program.
- o Continue to manage the Nuclear Data program.
- o Continue program direction of international cooperative efforts in the Nuclear Physics program.

III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

- o Continue environmental, safety, and health support for the high energy and nuclear physics facilities.
- o Continue on-site support at Fermilab, SLAC, RHIC and CEBAF.
- o Continue SSC termination activities and complete disposition of SSC assets.

FY 1997 Planned Accomplishments

- o Provide personnel compensation including salaries and personnel benefits, voluntary separation incentive payments, lump sum annual leave payments, travel, contractor support and other related expenses for 90 FTEs in the Office of High Energy and Nuclear Physics and related program and administrative support staff at Headquarters and the field.
- o Provide continued program direction of the high energy physics program.
- o Continue management and accountability for physics research projects.
- o Continue program direction to ensure the safe management, efficient operation and strong utilization of the large and complex high energy physics facilities and research capabilities.
- o Continue program direction of the Fermilab Main Injector and B-Factory projects, including preparing for FY 1998 B-Factory operation.
- o Provide program direction of experimental and theoretical research carried out by the university-based scientists and of test-bed exploration of very promising new advanced accelerator concepts and the Fermilab neutrino oscillation experiment.
- o Maintain collaboration with foreign partners for the conduct of experiments at foreign accelerators and program direction of the L3 detector; and increase participation with CERN member countries on the LHC. Renew the agreement for cooperation with Italy.

III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

- o Provide continued program direction of the nuclear physics program.
- o Provide program direction to the CEBAF laboratory including operation of the accelerator for research.
- o Support construction of the RHIC, including support of university participation in detector design and fabrication, and major equipment projects.
- o Complete fabrication and installation of the SNO Detector and initiate operation.
- o Continue to support and provide program direction to the Nuclear Theory Institute.
- o Continue to manage the Nuclear Data program.
- o Continue program direction of international cooperative efforts in the nuclear physics program.
- o Continue environmental, safety, and health support for the high energy and nuclear physics facilities.
- o Continue on-site support at Fermilab, SLAC, CEBAF, and RHIC.
- o Complete most of the remaining SSC termination activities.

Explanation of funding changes FY 1996 to FY 1997:

The increase of $950,000 in FY 1997 is required to fund the staff and related costs associated with managing the High Energy Physics and Nuclear Physics programs, whose budgets increase in FY 1997. These programs are among the largest and most complicated from a scientific and technical and an administrative point of view, in the world. The increase in the FY 1997 request for General Sciences Program Direction is for increases for salaries and benefits, other related expenses and the Working Capital Fund, which are partially offset by decreases in travel and support services contract funds.

III. Performance Summary: GENERAL SCIENCE PROGRAM DIRECTION (Cont'd)

Explanation of Average FTE costs:

Average FTE costs vary from office to office, with Headquarters being higher than the field. The primary reason for this is that the Headquarters average includes charges for the Working Capital Fund for centrally provided goods and services. Also, Headquarters staff includes a high percentage of senior scientific program managers performing planning, policy and program management responsibilities, while the field offices, because of the nature of the program execution functions they perform, have a higher percentage of lower graded support personnel. Average FTE costs at the field offices at Chicago, Oakland and Oak Ridge are very similar.

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Uranium Supply and Enrichnent Activities

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

URANIUM SUPPLY AND ENRICHMENT ACTIVITIES

VOLUME 3

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Uranium Supply and Enrichment Activities					
Uranium enrichment activities	84,884	85,790	81,594	-4,196	-4.9%
Program direction	4,374	4,110	5,672	1,562	38.0%
Subtotal, Uranium Supply and Enrichment Activities	89,258	89,900	87,266	-2,634	-2.9%
Revenues - Sales	—	-34,903	-42,200	-7,297	-20.9%
Use of prior year balances	-16,135	-25,703	-17,266	8,437	32.8%
Total, Uranium Supply and Enrichment Activities	**73,123**	**29,294**	**27,800**	**-1,494**	**-5.1%**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
URANIUM SUPPLY AND ENRICHMENT ACTIVITIES

PROPOSED APPROPRIATION LANGUAGE

For expenses of the Department of Energy in connection with operating expenses; the purchase, construction, and acquisition of plant and capital equipment and other expenses incidental thereto necessary for uranium supply and enrichment activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.) and the Energy Policy Act (Public Law 102-486, section 901), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion; purchase of electricity as necessary; and the purchase of passenger motor vehicles (not to exceed 3 for replacement only); [$64,197,000] $70,000,000, to remain available until expendended: Provided, That revenues received by the Department for uranium programs and estimated to total [$34,903,000] $42,200,000 in fiscal year [1996] 1997 shall be retained and used for the specific purpose of offsetting costs incurred by the Department for such activities notwithstanding the provisions of 31 U.S.C. 3302(b) and 42 U.S.C. 2296(b)(2): Provided further, That the sum herein appropriated shall be reduced as revenues are received during fiscal year [1996] 1997 appropriation from the General Fund estimated at not more than [$29,294,000] $27,800,000.

Explanation of Change

(1) Replacement vehicles required in FY 1997. None required in FY 1996.

(2) Language clarifies source of funds.

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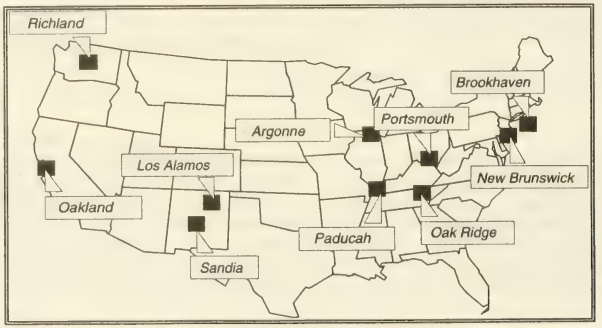
URANIUM PROGRAMS

PROGRAM MISSION

This program will provide expertise pertaining to uranium to address critical domestic and international nuclear issues, and advance U.S. competitiveness and security by providing nuclear products and services that meet the needs of the United States and the world community in a safe, environmentally-sound, and economical manner.



Uranium Programs Sites

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The GOALS of the Uranium Programs (UP) are to:

1. Cooperate and coordinate with other Departmental offices and government agencies in the implementation of U.S. nonproliferation policy.

2. Foster U.S. industrial competitiveness through technology transfer and increased exports of nuclear goods and services.

3. Manage Office of Nuclear Energy, Science and Technology (NE) facilities in a safe, economic, and environmentally-sound manner.

The OBJECTIVES related to these goals are:

1. Monitor the Russian processes involved in producing low enriched uranium (LEU) purchased from Russia to determine if the material is derived from highly enriched uranium (HEU).

2. Facilitate and increase commercial opportunities between U.S. nuclear suppliers and potential foreign buyers.

3. Facilitate commercial opportunities for U.S. nuclear fuel cycle participants.

4. Transfer derivative DOE-developed enrichment technologies to U.S. industry.

5. Identify and implement new opportunities for technology transfer.

6. Manage and dispose of NE's uranium and depleted uranium hexafluoride (DUF_6) inventories in a safe, economic, and environmentally-sound manner.

7. Help meet the Department's commitments to USEC.

PERFORMANCE MEASURES:

1. Reduce the HEU stockpile at the Portsmouth site by approximately 3 metric tons of uranium (MTU) in FY 1997 by blending it with LEU to produce reactor grade fuel.

2. Reduce the Departmental pre-existing liabilities (estimated to cost over $182,000,000) by $16,233,000 in FY 1997 by reimbursing the management and operating contractor and the power supplier for post-retirement life and medical costs for retirees who supported the Uranium Enrichment Program before July 1, 1993.

3. Correct or abate all safety-related deficiencies identified as potential near-term risks in Departmental facilities not leased to USEC.

PERFORMANCE MEASURES - continued:

4. Carry out up to eight special inspections in Russia to increase confidence that the LEU being purchased by the U.S. has been derived from HEU removed from dismantled Russian nuclear weapons, maintain a permanent presence office at Novouralsk, Russia, and establish a permanent presence office at Krasnoyarsk, Russia.

5. Complete 100 percent of the inspections on DUF_6 cylinders that are heavily oxidized and 33 percent of the remaining cylinder inventory.

6. Complete approximately 50 percent of the total required restacking effort in the DUF_6 management program. Approximately 12,000 cylinders will be restacked in FY 1997.

7. Complete cylinder skirt end cleaning and painting program.

8. Signed two Cooperative Research and Development Agreements (CRADA) with industry partnerships in FY 1995 and will sign a projected four CRADAs in FY 1996 and two in FY 1997 to transfer uranium technologies to result in new commercial market-oriented products and thereby benefit U.S. taxpayers and U.S. economic performance.

9. Prepare and submit an annual report concerning all Uranium Revitalization activities to the appropriate committees of Congress as required by the Energy Policy Act of 1992 (EPACT).

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- The Highly Enriched Uranium Equipment Shutdown activity reached the non-proliferation milestone of removing HEU from the operating facilities at the Portsmouth Gaseous Diffusion Plant in early FY 1996. Process facilities used for enriching the uranium-235 isotope during the last 40 years will have been cleaned to criticality-safe level. HEU materials stored in the cascade facility will be removed by the end of FY 1996.

- The Department signed a Memorandum of Agreement with USEC on December 15, 1994, that provides reimbursement procedures for activities of mutual concern, including the safety upgrades requirements in support of the USEC application for certification from NRC, and the refeeding of HEU from the weapons material inventory into the USEC enrichment operations.

- In FY 1995 and FY 1996, the Department will support USEC in transitioning from Department of Energy (DOE) regulatory requirements to the Nuclear Regulatory Commission Requirements for Certification. This includes preparation of a compliance plan for achieving NRC standards, to be submitted with the application for certification, as well as technical support in revising the operating safety requirements now in effect at the facilities, to technical safety requirements, that meet NRC operating conditions.

- The Department will implement detailed protocol agreements detailing procedures governing all aspects of monitoring visits and verification activities pursuant to the Russian down blending of HEU for shipment of LEU to the U.S. and provide assistance as appropriate to Russian monitors in the U.S..

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS: - continued

- This NE program supported the Secretary's response to the Chairman of the Defense Nuclear Facilities Safety Board (DNFSB) on June 29, 1995, that answers the DNFSB May 5, 1995, Recommendation 95-1 concerning improved safety of cylinders containing UF_6. An implementation plan was developed in consultation with the DNFSB and delivered on October 16, 1995.

- After nearly five years of activities to correct environmental noncompliances in the operating facilities at the two gaseous diffusion plants, corrective actions were completed in FY 1995 in all areas but one. The remaining activity, biological monitoring of water discharged from the Paducah facility, will continue as part of the permit requirements with the state of Kentucky.

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URANIUM PROGRAMS

PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Uranium Programs					
Operating Expenses	$ 80,156	$ 83,500	$ 0	$ 83,500	$ 83,266
Construction	9,102	6,400	0	6,400	4,000
SUBTOTAL, Uranium Programs	**89,258**	**89,900**	**0**	**89,900**	**87,266**
Use of Prior Year Balances					
Operating Expenses	-10,033[a]	-25,000[a]	0	-25,000[a]	-14,916[a]
Construction	-6,102	-703	0	-703	-2,350
SUBTOTAL, Use of Prior Year Balances	**-16,135**	**-25,703**	**0**	**-25,703**	**-17,266**
TOTAL, Uranium Programs	**$ 73,123**	**$ 64,197**	**$ 0**	**$ 64,197**	**$ 70,000**

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[a]The following amounts are from the proposed FY 1993 reprogramming to manage responsibilities left with the Department: FY 1995 - $4,000,000; FY 1996 - $25,000,000; FY 1997 - $14,916,000.

URANIUM PROGRAMS

PROGRAM FUNDING BY SITE
(Dollars in Thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office					
Los Alamos National Laboratory	$ 513	$ 0	$ 0	$ 0	$ 0
Sandia National Laboratories	657	50	0	50	0
Chicago Operations Office					
Argonne National Lab (East)	1,380	3,200	0	3,200	2,160
Brookhaven National Lab	300	100	0	100	0
New Brunswick	68	300	0	300	700
Idaho Operations Office	29	0	0	0	0
Nevada Operations Office	506	0	0	0	380
Oakland Operations Office	1,168	2,602	0	2,602	110
Lawrence Livermore National Lab	7,490	5,820	0	5,820	14,655
Oak Ridge Operations Office	7,800	3,609	0	3,609	11,927
K-25 Site	15,528	29,442	0	29,442	19,727
Oak Ridge Institute for Science and Education	6	579	0	579	0
Oak Ridge National Laboratory	1,082	0	0	0	0
Paducah Gaseous Diffusion Plant	22,224	20,886	0	20,886	15,827
Portsmouth Gaseous Diffusion Plant	28,551	20,363	0	20,363	17,510
Ohio Area Field Office	1	0	0	0	0
Richland Operations Office	0	470	0	470	0
Pacific Northwest Lab	100	100	0	100	0
All Other Sites	1,855	2,379	0	2,379	4,270
TOTAL	**$ 89,258**	**$ 89,900**	**$ 0**	**$ 89,900**	**$ 87,266**

PROGRAM OBJECT CLASS SUMMARY
(Obligations in Thousands)

	FY 1995 Comp.	FY 1995 Non-Comp.	FY 1996 Comp.	FY 1996 Non-Comp.	FY 1997 Request
23.3 Communications, utilities, and miscellaneous charges	$ 3,367	$ 3,367	$ 3,500	$ 3,500	$ 3,500
25.1 Consulting services	529	529	1,290	1,290	1,751
25.2 Other services	5,232	5,232	1,350	1,350	641
25.3 Purchase of goods and services from Government accounts	83	83	0	0	13,168
25.4 Operation of GOCOs	67,462	67,462	71,733	71,733	54,644
25.5 Research and development contracts	50	50	2,000	2,000	1,000
31.0 Equipment	1,001	1,001	1,420	1,420	2,890
32.0 Land and structures	8,501	8,501	4,396	4,396	4,000
99.0 Subtotal, Direct Obligations	**$ 86,225**	**$ 86,225**	**$ 85,689**	**$ 85,689**	**$ 81,594**
Reimbursable Program	0	0	0	0	0
99.9 Total Obligations	**$ 86,225**	**$ 86,225**	**$ 85,689**	**$ 85,689**	**$ 81,594**
Recovery of prior year obligations	-335	-335	0	0	0
Unobligated balance available, start of year	134,703	134,703	83,238	83,238	17,266
Unobligated balance transferred	-34,324	-34,324	-40,370	-40,370	0
Unobligated balance available, end of year	83,238	83,238	17,266	17,266	0
Budget Authority	**$ 68,749**	**$ 68,749**	**$ 60,087**	**$ 60,087**	**$ 64,328**

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I. Mission Supporting Goals and Objectives

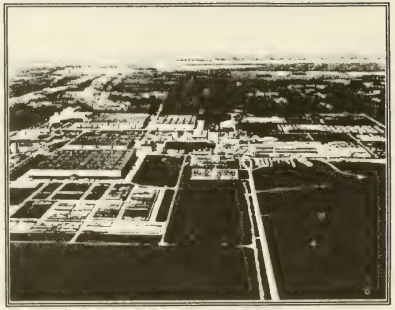
These activities are primarily focused on improving the United States' industrial competitiveness through two major sets of activities.

First, EPACT requires the Department to continue supporting USEC in a series of interdependent activities. These mutually dependent DOE/USEC activities are essential to the eventual success of USEC, a statute-driven example of reinventing Government through privatization initiatives. While privatization of USEC is expected to occur in FY 1996, Departmental involvement will continue long term.

NE is working with USEC to fulfill the Department's EPACT-mandated responsibilities and ensure that the Corporation's long-term value to the Treasury is maximized.

Specific efforts include: (1) regulatory oversight activities and a nuclear safety compliance program to ensure the continued safe and efficient operation of the gaseous diffusion plants; (2) DUF_6 management to provide an Environmental Impact Statement (EIS) to assess the long term disposition alternatives for the Department's inventory of DUF_6; (3) transparency measures to help build confidence that LEU being purchased by USEC has been derived from Russian HEU; (4) surveillance and maintenance of leased and non-leased facilities and the HEU safeguards and storage activities at Portsmouth; (5) the uranium revitalization initiatives designed to strengthen the domestic uranium industry; and (6) reimbursable work performed in support of USEC.

Second, NE is partnering with U.S. industry to capitalize on the $1,300,000,000 investment made in gaseous diffusion membrane and centrifuge technologies by the Department that can be used in other applications. This technology transfer effort offers great potential for a wide variety of businesses.



Depleted UF_6 Cylinder Storage Yards at Paducah
Yards cover about 40 acres and contain about 28,300 cylinders (60% of DOE inventory). The largest yard has over 1,000 cylinders lying on gravel; increasing corrosion rate. That yard, and others must be rebuilt to fix this problem.

1997

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Highly Enriched Uranium Equipment Shutdown and Inventory Disposition	$ 6,124	$ 5,005	$ 3,370	$ -1,635	-33
Nuclear Safety Compliance Corrective Actions	1,493	11,100	2,100	-9,000	-81
Maintenance of Leased and Non-Leased Facilities	16,539	13,140	11,734	-1,406	-11
Technology Partnerships	6,651	2,000	1,000	-1,000	-50
Pre-existing Liabilities	11,056	13,740	16,903	3,163	23
Transparency Measures	7,361	6,950	13,890	6,940	100
Depleted Uranium Hexafluoride Cylinders and Maintenance	8,657	21,925	20,193	-1,732	-8
Large Scale Classification Review	249	300	429	129	43
Corrective Actions	12,565	1,000	1,000	0	0
Program Management Services	3,667	2,490	4,085	1,595	64
Other Project Funding	170	340	0	-340	-100
General Plant Projects	250	0	0	0	0
Capital Equipment	1,000	1,400	2,890	1,490	106
Construction	9,102	6,400	4,000	-2,400	-37
TOTAL, Uranium Programs (excluding Program Direction)	**$ 84,884**	**$85,790**	**$ 81,594**	**$ -4,196**	**-5**

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III. Performance Summary:

FY 1995 Accomplishments:

- Highly Enriched Uranium Equipment Shutdown and Inventory Disposition
  - Completed HEU cell treatment program, this removes all HEU deposits in the cascade equipment that can be removed by a dedicated cell cleaning process.
  - Continued safeguards and security activity for HEU material.

- Nuclear Safety Compliance Corrective Actions
  - Submitted the DOE Compliance Plan to NRC in April 1995 in support of the NRC certification process for the leased gaseous diffusion plants.

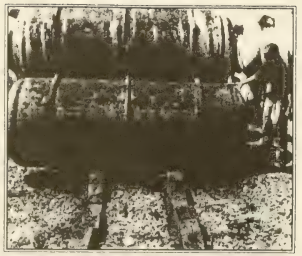
- Maintenance of Leased and Non-leased Facilities
  - Maintained grounds and roads including grass mowing, erosion and weed control, overgrowth management, patching and repair of 47 miles of gravel roads, 20 miles of fencing, and ditch maintenance.
  - Maintained polychlorinated biphenyl (PCB) troughing systems (over 32,000 troughs) in seven Paducah and Portsmouth process buildings leased to USEC, which involves routine inspections, repairs, waste containerization, spill clean-up and laboratory analysis.
  - Managed the storage and surveillance of uranium bearing materials in Building X-744-G.
  - Maintained non-leased facilities including general maintenance, building utilities, routine inspection and repairs.
  - Initiated contingency plan for the possible return of a gaseous diffusion plant by USEC.
  - Continued lease management and power procurement in support of USEC.

- Technology Partnerships
  - Laboratory scale demonstration activities were conducted on both membrane and advanced machinery technologies using Department developed enrichment technology in alternate commercial non-enrichment applications.
  - Two CRADAs using the results of the beneficial studies were signed in August 1995 with private industrial partners matching Federal funding and tasking for new commercial market oriented applications in non-uranium enrichment fields of use.
  - Additional commercial applications (over 40) and potential industry partners (over 30) were identified with potential for CRADA proposals in FY 1996 and FY 1997.
  - Four CRADAs using classified membrane technology were drafted with private industrial partner commitments of matching development funding and tasking; but CRADAs are placed on hold pending resolution of nonproliferation, national security and export control concerns.
  - Prepared new security standards for commercialization of technology.
  - The Department is actively investigating uses of the Department developed technology in non-enrichment fields of use with emphasis on cleanup and remediation of Department hazardous waste and toxin compounds, and removal of contaminates from industrial processes.

- Pre-existing Liabilities
  - Continued the payment of post-retirement life and medical benefits for Lockheed Martin and Ohio Valley Electric Corporation (OVEC) retired employees.
  - Continued litigation of legal actions attributable to operation of the uranium enrichment enterprise before the July 1, 1993, transfer to USEC.

FY 1995 Accomplishments - continued

- Transparency Measures
  - Conducted three monitoring training courses.
  - USEC placed an order for 186 MTU of Russian LEU derived from HEU that was delivered by the end of 1995.
  - National laboratory proposals for developing special monitoring equipment for use in the blending facility at Ural Electrochemical Integrated Enterprise (UEIE) were reviewed by an independent panel of experts.
  - Conducted the first familiarization visit to the Siberian Chemical Enterprise (SChE) plant at Tomsk, Russia, and the first monitoring trip to the UEIE plant at Novouralsk, Russia.
  - Completed draft annexes containing the detailed procedures governing all aspects of monitoring visits and transparency activities for use by the Transparency Review Committee (TRC).
  - Supported TRC meetings to negotiate and finalize where possible the annexes that govern monitoring procedures, including allowable reception and representation expenses.
  - Prepared Draft Safety Report and Security Report.
  - Provided assistance to USEC and the U.S. Fuel Fabricators for Russian visits to their facilities.



A Cylinder in Contact with Gravel at Paducah
Poor drainage means such cylinders are often in contact with water which can accelerate corrosion. The bottom portion of these cylinders cannot be inspected. As of October 1995, cylinders are no longer in ground contact.

- Depleted Uranium Hexafluoride Cylinders and Maintenance
  - Completed input to the Secretarial response to DNFSB Recommendation 95-1.
  - Submitted implementation plan to DNFSB Recommendation 95-1.
  - Inspected approximately 50 percent of the cylinders in inventory.
  - Restacked 2,600 cylinders at Portsmouth and Paducah to improve their inspectability, and removed 1,000 cylinders from ground contact at Paducah.
  - Cleaned 7,000 cylinder ends , painted over 1,700 cylinder ends.
  - Removed 7 cylinders at Oak Ridge from ground contact and moved 150 cylinders to improve their inspectability.
  - Conducted a series of public meetings at the three gaseous diffusion plant sites related to the long term strategy selection (EIS).
  - Completed independent technical review of public comments related to potential uses of depleted uranium and disposal options and issued Technology Assessment Report.

- Large Scale Classification Review
  - Completed preparation of large scale classification review plan and completed review of 120,949 pages of documents.

- Corrective Actions
  - Completed all planned corrective actions at the Portsmouth and Paducah Gaseous Diffusion Plants.

- Program Management Services
  - Provided support services for expertise not available internally for specialized areas, such as criticality analysis, environmental management, National Environmental Protection Act (NEPA) implementation, regulatory analysis, contingency planning, uranium market analysis, and health and safety issues.

FY 1995 Accomplishments: - continued

- Other Project Funding
  - Approved Conceptual Design Report to identify DUF_6 cylinder storage yards.

- General Plant Projects
  - Awarded a design-build contract for construction of office building at Paducah.
  - Completed Dykes Road improvements at Paducah.

- Capital Equipment
  - Purchased items of capital equipment required for UP and laboratory equipment for Technology Partnerships activities.

- Construction
  - Completed construction of S and E cylinder storage yards.

FY 1996 Accomplishments (to date and planned):

- Highly Enriched Uranium Equipment Shutdown and Inventory Disposition
  - Complete the disassembly and HEU decontamination of HEU cascade equipment.
  - Begin surveillance and maintenance of shutdown HEU cascade equipment in mid-FY 1996.
  - Renew shipment of HEU oxides to Y-12 upon startup of Y-12.
  - Continue safeguards and security activity for HEU material.

- Nuclear Safety Compliance Corrective Actions
  - Resubmit the DOE Compliance Plan to NRC in October 1995 in support of the NRC certification process for the leased gaseous diffusion plants.
  - Submit an annual update of the DOE Compliance Plan to NRC on the status of required nuclear safety upgrades.
  - Complete Safety Analysis Reports (SAR) for Paducah and Portsmouth Gaseous Diffusion Plant sites.
  - Complete transition from DOE to NRC regulatory oversight of the leased gaseous diffusion plants.

- Maintenance of Leased and Non-leased Facilities
  - Maintain grounds and roads including grass mowing, erosion and weed control, overgrowth management, patching and repair of 47 miles of gravel roads, 20 miles of fencing, and ditch maintenance.
  - Maintain PCB troughing systems (over 32,000 troughs) in seven Paducah and Portsmouth process buildings leased to USEC, which involves routine inspections, repairs, waste containerization, spill clean-up and laboratory analysis.
  - Manage the storage of uranium bearing materials in Building X-744-G.
  - Maintain non-leased facilities including general maintenance, building utilities, routine inspection and repairs.
  - Continue lease management and power procurement in support of USEC.

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FY 1996 Accomplishments (to date and planned): - continued

- Technology Partnerships
  - Studies of national security, non-proliferation and export control concerns continue regarding execution of Department developed classified membrane technology in commercial applications of non-enrichment fields of use
  - A number of private industrial partners (over 30) expressed interest in and a commitment to match Federal funding for CRADAs using Department developed enrichment technologies.
  - Industrial briefing on "Semiconductor Power and Conditioning Electronics" conducted at Oak Ridge November 9-10, 1995 with over 20 industrial firms attending and identifying potential additional CRADAs to develop current market oriented high value commercial products using Department developed technology.
  - Membrane and advanced machinery beneficial studies and laboratory testing are continuing that may result in additional CRADA proposals with private industrial partners matching Federal funding.
  - Four additional CRADAs are planned in FY 1996.

- Pre-existing Liabilities
  - Continue the payment of post-retirement life and medical benefits for Lockheed Martin and OVEC retired employees.
  - Continue litigation of legal actions attributable to operation of the uranium enrichment enterprise before the July 1, 1993, transfer to USEC.

- Transparency Measures
  - Conduct special monitoring trips to UEIE and SChE.
  - Conduct a familiarization visit to the Krasnoyarsk Electrochemical Plant at Krasnoyarsk, Russia.
  - Establish and maintain a continuous presence office at UEIE.
  - Develop and implement more effective transparency measures at the Russian facilities.
  - Support TRC meetings including allowable reception and representation expenses.
  - Provide oversight of Russian monitoring activities at U.S. facilities.
  - Provide assistance to U.S. facilities that will be subject to Russian monitoring activities.
  - Develop and deploy, as needed, special non-intrusive monitoring equipment.

- Depleted Uranium Hexafluoride Cylinders and Maintenance
  - Inspect about 27,000 cylinders.
  - Relocate and restack 12,000 cylinders.
  - Clean and paint 4,200 cylinder ends.
  - Paint 500 entire cylinders.
  - Remove 2,600 cylinders from ground contact at Paducah.
  - Complete engineering analysis in support of the long term strategy selection.
  - Publish Notice of Intent to prepare EIS for DUF_6.

- Large Scale Classification Review
  - Complete the review of about 110,000 pages of classified documents.

- Corrective Actions
  - Continue biological monitoring of stream discharges at the Paducah Gaseous Diffusion Plant site.

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FY 1996 Accomplishments (to date and planned): - continued

- Program Management Services
  - Provide support services for expertise not available internally for specialized areas, such as criticality analysis, environmental management, NEPA implementation, regulatory analysis, contingency planning, uranium market analysis, and health and safety issues.

- Other Project Funding
  - Completed NEPA-Environmental Assessment and NEPA-Categorical Exclusion for DUF_6 cylinder storage yards.

- Capital Equipment
  - Purchase items of capital equipment required for UP and laboratory equipment for Technology Partnerships activities.
  - Purchase additional capital equipment to test and demonstrate commercial prototypes using the Department developed technology.

- Construction
  - Complete construction of G cylinder storage yard.
  - Complete construction of roofing project at Portsmouth.

FY 1997 Planned Accomplishments:

- Highly Enriched Uranium Equipment Shutdown and Inventory Disposition
  - Continue surveillance and maintenance of shutdown HEU cascade equipment.
  - Complete shipments of HEU oxides to Y-12.
  - Continue to guard residual deposits remaining in the cascades as per agreement with the Office of Safeguards and Security.

- Nuclear Safety Compliance Corrective Actions
  - Submit an annual update of the DOE Compliance Plan to NRC on the status of required nuclear safety upgrades.

- Maintenance of Leased and Non-leased Facilities
  - Maintain grounds and roads including grass mowing, erosion and weed control, overgrowth management, patching and repair of 47 miles of gravel roads, 20 miles of fencing, and ditch maintenance.
  - Maintain PCB troughing systems (over 32,000 troughs) in seven Paducah and Portsmouth process buildings leased to USEC, which involves routine inspections, repairs, waste containerization, spill clean-up and laboratory analysis.
  - Manage the storage of uranium bearing materials in Building X-744-G.
  - Maintain non-leased facilities including general maintenance, building utilities, routine inspection and repairs.
  - Continue lease management and power procurement in support of the USEC.

FY 1997 Planned Accomplishments: - continued

- Technology Partnerships
  - Two additional CRADAs are planned in FY 1997 with private industrial partners matching Federal funding and tasks for non-uranium enrichment commercial applications that utilize Department developed membrane and advanced machinery technologies.
  - Resolution of non-proliferation, national security and export concerns and proceeding with declassification is planned; thereby, enabling Department developed technology to be utilized in commercial products through use of CRADAs and licensing agreements with private industrial firms matching Federal funding and development tasks.

- Pre-existing Liabilities
  - Continue the payment of post-retirement life and medical benefits for Lockheed Martin and OVEC retired employees.
  - Continue litigation of legal actions attributable to operation of the uranium enrichment enterprise before the July 1, 1993, transfer to USEC.

- Transparency Measures
  - Conduct special monitoring trips to UEIE, SChE, and Krasnoyarsk.
  - Maintain a continuous presence office at UEIE.
  - Establish a permanent presence office at Krasnoyarsk.
  - Develop and implement more effective transparency measures at the Russian facilities.
  - Support TRC meetings including allowable reception and representation expenses.
  - Provide oversight of Russian monitoring activities at U.S. facilities.
  - Provide assistance to U.S. facilities that will be subject to Russian monitoring activities.

- Depleted Uranium Hexafluoride Cylinders and Maintenance
  - Complete construction of T cylinder yard at Paducah.
  - Inspect about 27,000 cylinders.
  - Relocate and restack 12,000 cylinders.
  - Clean and paint 3,600 cylinder ends.
  - Clean and paint approximately 3,800 cylinder bodies.
  - Paint approximately 2,500 entire cylinders.
  - Complete engineering cost analysis in support of the long term strategy selection.
  - Issue draft EIS for DUF_6.

- Large Scale Classification Review
  - Complete the review of about 110,000 pages of classified documents.

- Corrective Actions
  - Continue biological monitoring of stream discharges at the Paducah Gaseous Diffusion Plant site.

- Program Management Services
  - Provide support services for expertise not available internally for specialized areas, such as criticality analysis, environmental management, NEPA implementation, regulatory analysis, contingency planning, uranium market analysis, and health and safety issues.

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FY 1997 Planned Accomplishments: - continued

- Capital Equipment
  - Purchase items of capital equipment required for UP.
  - Purchase four cylinder handlers and two portable cylinder painting facilities for Portsmouth and Oak Ridge Gaseous Diffusion Plant sites.

- Construction
  - Complete construction of T cylinder storage yard.

Explanation of Funding Changes FY 1996 to FY 1997:

Nuclear Safety Compliance Corrective Actions
- Less funding is required because the DOE site-wide SARs will be completed by the end of FY 1996.

Maintenance of Leased and Non-leased Facilities
- Less funding is required because the USEC Plant Turn Back Plan will be completed by the end of FY 1996 and because we are minimizing the maintenance activities related to the plant perimeter road system.

Technology Partnerships
- Funding for technology partnerships is decreasing due to Congressional budget cuts that result in reallocation of funding to other higher priority efforts.

Pre-existing Liabilities
- Post-retirement life and medical costs are increasing for the Lockheed Martin retirees because of inflation and because the number of retirees is projected to increase.

Transparency Measures
- The increase in funding for Transparency Measures from FY 1996 to FY 1997 is due to cost for conducting monitoring at an additional Russian facility.
- In FY 1997, Russia will deliver LEU from two Russian plants: UEIE and Krasnoyarsk. The U.S. plans to conduct monitoring at each site in FY 1997.

Depleted Uranium Hexafluoride Cylinders and Maintenance
- Significant acceleration is planned in cylinder maintenance activities. This acceleration is a result of a potential notice of violation settlement with the State of Ohio and to satisfy the Secretarial respondence to DNFSB Recommendations.

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URANIUM PROGRAMS
(Dollars in Thousands)

IV. Construction Funded Project Summary

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Approp.	FY 1996[a] Approp.	FY 1997 Request	Unapprop. Balance
96-U-201	DUF$_6$ Cylinder Storage Yards, Paducah, KY, Gaseous Diffusion Plant	23,700	0	0	3,000	4,000	16,700
93-U-200	UF$_6$ Cylinders and Storage Yards, Paducah, KY and Portsmouth, OH, Gaseous Diffusion Plant	9,500	2,248	3,852	3,400	0	0
91-U-200	Replacement of Capacitors, Paducah, KY, Gaseous Diffusion Plant	2,636	3,489	0	-703	-150	0
91-U-206	Reduction of PCB Contamination, Paducah, KY, and Portsmouth, OH, Gaseous Diffusion Plant	39,800	46,000	-4,000	0	-2,200	0
91-U-207	Roof Upgrading, Portsmouth, OH, Gaseous Diffusion Plant	6,803	7,753	-950	0	0	0
91-U-208	Safeguards and Security Upgrading, Portsmouth, OH, Gaseous Diffusion Plant	11,700	11,000	700	0	0	0
89-U-501	UF$_6$ Cylinders and Storage Yards, Paducah, KY and Portsmouth, OH, Gaseous Diffusion Plant	27,186	22,886	4,300	0	0	0
87-N-502	Cooling Tower Upgrading, Paducah, KY, Gaseous Diffusion Plant	3,469	4,621	-1,152	0	0	0
84-N-405	Utilities Upgrading, Phase III, Paducah, KY, and Portsmouth, OH, Gaseous Diffusion Plant	28,621	26,705	250	0	0	1,666
Total Uranium Programs			**$ 124,702**	**$ 3,000**	**$ 5,697**	**$ 1,650**	**$ 18,366**

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URANIUM PROGRAMS[1]

PROGRAM DIRECTION OBJECT CLASS SUMMARY
(Obligations in Thousands)

Personnel Compensation:	FY 1995 Comp.	FY 1995 Non-Comp.	FY 1996 Comp.	FY 1996 Non-Comp.	FY 1997 Request
11.1 Full-time permanent	$ 2,618	$ 2,618	$ 2,587	$ 2,587	$ 2,858
11.3 Other than full-time permanent	29	29	0	0	0
11.5 Other personnel compensation	56	56	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total Personnel Compensation	**$ 2,703**	**$ 2,703**	**$ 2,587**	**$ 2,587**	**$ 2,858**
12.1 Civilian personnel benefits	513	513	526	526	578
13.0 Benefits for former personnel	25	25	0	0	0
21.0 Travel and transportation of persons	247	247	439	439	575
22.0 Transportation of things	1	1	0	0	0
23.2 Rental Payments to Others	26	26	0	0	0
25.2 Other Services	204	204	575	575	991
25.4 Operation of GOCOs	690	690	286	286	670
26.0 Supplies and materials	1	1	0	0	0
99.0 Subtotal, Direct Obligations	**$ 4,410**	**$ 4,410**	**$ 4,413**	**$ 4,413**	**$ 5,672**
Reimbursable Program	0	0	0	0	0
99.9 Total Obligations	**$ 4,410**	**$ 4,410**	**$ 4,413**	**$ 4,413**	**$ 5,672**
Recovery of prior year obligations	-303	-303	0	0	0
Unobligated balance available, start of year	36	36	303	303	0
Unobligated balance available, end of year	303	303	0	0	0
Budget Authority	**$ 4,374**	**$ 4,374**	**$ 4,110**	**$ 4,110**	**$ 5,672**

URANIUM PROGRAMS
PROGRAM DIRECTION
(Dollars in Thousands)

I. Mission Supporting Goals/Ongoing Responsibilities

The Uranium Programs Program Direction account supports some Office of Nuclear Energy, Science and Technology personnel at Headquarters, some Operations Office personnel, and some employees of non-Department of Energy federal organizations that provide support for Uranium Programs activities. This activity also includes funding for administrative expenses, such as: training, computer support, including hardware and software acquisitions, modifications, and other telecommunications services for work stations.

II. Funding Table

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Summary - Budget					
Headquarters Funding	$ 1,718	$ 2,055	$ 0	$ 2,055	$ 2,128
Field Funding	2,692	2,958	0	2,958	3,544
TOTAL, BUDGET	$ 4,410	$ 5,013	$ 0	$ 5,013	$ 5,672
Summary - Strategic Alignment Staffing Targets					
Headquarters End of Year Staffing					
Program Direction	126			114	99
Isotope Production & Dist.	10			9	9
Uranium Programs	17			16	15
TOTAL, HEADQUARTERS	153			139	123
Field End of Year Staffing					
Program Direction	39			33	30
Isotope Production & Dist.	1			1	1
Uranium Programs	35			35	29
TOTAL, FIELD	75			69	60

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II. Funding Table - continued Detailed Breakout	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Chicago					
Salary and Benefits	$ 0	$ 0	$ 0	$ 0	$ 0
Travel	0	0	0	0	0
Support Services	0	0	0	0	0
Other Related Expenses	68	250	0	250	700
Total	$ 68	$ 250	$ 0	$ 250	$ 700[1]
End of Year Staffing	0			0	0
Idaho					
Salary and Benefits	$ 0	$ 0	$ 0	$ 0	$ 0
Travel	2	0	0	0	0
Support Services	0	0	0	0	0
Other Related Expenses	27	0	0	0	0
Total	$ 29	$ 0	$ 0	$ 0	$ 0
End of Year Staffing	0			0	0
Oakland					
Salary and Benefits	$ 130	$ 90	$ 0	$ 90	$ 90
Travel	30	13	0	13	15
Support Services	0	0	0	0	0
Other Related Expenses	5	5	0	5	5
Total	$ 165	$108	$ 0	$108	$ 110
End of Year Staffing	0			2	2
Average Salaries and Benefits	$0			$90	$90

[1] Funding is in support of reimbursable work at New Brunswick Laboratory (NBL) for activities associated with the Transparency Measures program. NBL is funded under the Office of Nonproliferation and National Security Program Direction account.

II. Funding Table - continued	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Oak Ridge					
Salary and Benefits	$ 1,607	$ 1,671	$ 0	$ 1,671	$1,954
Travel	132	105	0	105	110
Support Services	0	0	0	0	0
Other Related Expenses	690	824	0	824	670
Total	$ 2,429	$ 2,600	$ 0	$ 2,600	$ 2,734
End of Year Staffing	35			33	27
Average Salaries and Benefits	$62			$80	$85
Ohio					
Salary and Benefits	$ 0	$ 0	$ 0	$ 0	$ 0
Travel	1	0	0	0	0
Support Services	0	0	0	0	0
Other Related Expenses	0	0	0	0	0
Total	$ 1	$ 0	$ 0	$ 0	$ 0
End of Year Staffing	0			0	0
Headquarters					
Salary and Benefits	$ 1,540	$ 1,414	$ 0	$ 1,414	$ 1,392
Travel	135	321	0	321	450
Support Services	0	0	0	0	0
Other Related Expenses	43	320	0	320	286
Total	$ 1,718	$ 2,055	$ 0	$2,055	$ 2,128
End of Year Staffing	17			16	15
Average Salaries and Benefits	$96			$94	$93
Adjustment - FY 1995 Unobligated/ Uncosted Carryover	-36	-903	0	-903	0
Budget Authority	4,374	4,110	0	4,110	5,672

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III. Performance Summary

FY 1995 Measurable Performance Activities:

Completed second year of NE Headquarters streamlining and downsizing. Overall accomplishments (from FY 1993 baseline) which include all Program Direction activities are:

- Reducing Headquarters staff from 258 to 148 (41 percent reduction)
- Reducing the number of senior executive positions from 22 to 7 (68 percent reduction)
- Increasing employee to supervisor ratio from 2:1 to 10:1
- Reducing reliance on support service contracts by 38 percent
- Reducing the number of support service contractors occupying NE office space by 50 percent (from 24 to 12)

FY 1996 Measurable Performance Activities:

The key benchmarks by which NE will measure its FY 1996 streamlining performance are:

- Reducing Headquarters staff to 139
- Reducing senior executive positions to six
- Increasing the employee to supervisor ratio to 11:1
- Reducing travel by 20 percent from FY 1995 level
- Reducing reliance on support service contracts by 15 percent from FY 1995 level

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FY 1997 Measurable Performance Activities:

The key benchmarks by which NE will measure its FY 1997 streamlining performance are:

- Reducing Headquarters staff to 123 (a 52 percent reduction since 1993)
- Increasing the employee to supervisor ratio to 12:1
- Reducing senior executive positions to five
- Reducing reliance on support service contractors by 15 percent from FY 1995 level

IV. Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $659,000 is primarily due to increased support by the New Brunswick Laboratory associated with Transparency Measures activities as well as increased travel expenses due a full year of monitoring activities. All Transparency Measures travel is budgeted in the Headquarters account pending final selection of monitors for trips.

V. Explanation of Average FTE Costs:

The average employee costs are based on detailed calculations of employee salary costs (adjusted for escalation), benefits (life insurance, Medicare, and retirement), and other personnel compensation (such as awards and overtime). The average costs per employee does not include other expenses such as the working capital fund and travel, since this has been centrally budgeted for all NE Headquarters employees. The average employee costs are calculated using the end of year staffing level less the number of full time equivalents that are reimbursed by the United States Enrichment Corporation.

The overall average NE Headquarters employee salary and benefits cost is $95,000. The average NE Headquarters Uranium Programs employee salary and benefits cost is $93,000. The variance is negligible.

The overall average NE Field employee salary and benefits cost is $91,000. The average NE Field Uranium Programs employee salary and benefits cost is $85,000. The variance is due to lower grade employees at the field in the Uranium program.

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The average "fully loaded" employee costs are to include an allocation of expenses for rent, utilities, telecommunications, materials and supplies, etc., as well as salaries and benefits. These costs, for Headquarters and Field employees, are shown below:

Cost Category	Average per Headquarters Employee	Average per Field Employee
Salary and Benefits	95	91
Travel	7	5
Rent and Utilities	6	-
Contract Audits	3	-
ADP Support	3	-
Other Expenses	6	17
Total Average	120	113

- Does not include:

  -support services costs which are predominantly funded by program operating expenses;
  -travel by other federal agency employees (e.g., State Department travel related to transparency measures program activities);
  -other expenses not related to federal staffing (e.g., funding for New Brunswick Laboratory employees related to transparency measures monitoring activities in Russia); and
  -retirement "buyout" payments and related expenses.

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URANIUM PROGRAMS OFFSETTING COLLECTIONS

PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Uranium Programs Offsetting Collections					
Operating Expenses	$ 0	$ -34,903	$ 0	$ -34,903	$ -42,200
TOTAL	**$ 0**	**$ -34,903**	**$ 0**	**$ -34,903**	**$ -42,200**

URANIUM PROGRAMS OFFSETTING COLLECTIONS

PROGRAM FUNDING BY SITE
(Dollars in Thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
All Other	$ 0	$ -34,903	$ 0	$ -34,903	$ -42,200
TOTAL	**$ 0**	**$ -34,903**	**$ 0**	**$ -34,903**	**$ -42,200**

URANIUM PROGRAMS OFFSETTING COLLECTIONS
(Dollars in Thousands)

I. Mission Supporting Goals and Objectives

This activity involves the sale of low enriched uranium (LEU) and natural uranium to partially offset residual uranium enrichment liabilities. LEU to be sold in FY 1996 was received during FY 1994 and will be received in FY 1996 as the result of an intergovernmental agreement. The natural uranium to be sold in FY 1997 is considered excess to the Department's needs. The Department is currently negotiating a sales and marketing agreement with the United States Enrichment Corporation (USEC) to market this material for the Department.

II. Funding Schedule

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Contract Sales	$ 0	$ -34,903	$ -42,200	$ -7,297	21
TOTAL, Uranium Programs Offsetting Collections	**$ 0**	**$ -34,903**	**$ -42,200**	**$ -7,297**	**21**

III. Performance Summary:

FY 1995 Accomplishments:

- Initiated negotiation of a sales and marketing agreement with USEC.
- Initiated work on an Environmental Assessment (EA).

FY 1996 Accomplishments (to date and planned):

- Complete EA.
- Receive LEU as the result of an intergovernmental agreement.
- Negotiate a sales and marketing agreement with USEC.
- Collect $34,903,000 from the sale of LEU received by the Department subsequent to July 1, 1993.

FY 1997 Planned Accomplishments:

- Collect $42,200,000 from the sale of natural uranium owned by the Department.

Explanation of Funding Changes FY 1996 to FY 1997:

The increase in collections of $7,297,000 is due to the sale of more material and projected higher prices in FY 1997.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
CONSTRUCTION PROJECT DATA SHEETS
URANIUM PROGRAMS - PLANT AND CAPITAL EQUIPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: DUF6 cylinder storage yards, Paducah, Kentucky, gaseous diffusion plant

2a. Project No.: 96-U-201
2b. Construction Funded

3a. Date A-E work initiated (Title I Design Start Schedule): 2nd Qtr. FY 1996

3b. A-E Work (Title I & II) Duration: 15 months

4a. Date Physical Construction Starts: 4th Qtr. FY 1996

4b. Date Construction Ends: 4th Qtr. FY 2000

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $0
Total Project Cost (TPC) -- $0

6. Current Estimate:
TEC $23,700
TPC $28,325

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1996	$ 3,000	$ 0	$ 3,000	$ 600
1997	4,000	0	4,000	6,000
1998	6,000	0	6,000	4,700
1999	8,000	0	8,000	8,700
2000	2,700	0	2,700	3,700

8. Project Description, Justification and Scope:

This project will provide the design and construction of a new depleted uranium hexafluoride (DUF6) cylinder storage yard of approximately 465,000 square feet, designated C-745-T, and the renovation of C-745-K, L, M, N, and P cylinder storage yards from gravel to concrete. This project will entail designing and constructing several reinforced concrete haul roads, updated and centrally powered lighting fixtures, improved drainage, and extension of the existing patrol road and security fence.

The mission of this project is to provide safe long-term storage of DUF6 cylinders until eventual disposition.

C-745-T yard is necessary due to the overcrowding of cylinders in existing Department of Energy (DOE) cylinder yards. Past practices of stacking cylinders in as tight a configuration as possible has led to several breaches due to lifting lug impingement and does not allow room for adequate visual inspection of cylinders. Current stacking requirements are designed to allow for better inspections and do not allow cylinder lifting lug impingement on adjacent side or top row cylinders. Additionally, C-745-T is large enough to allow relocation of all DOE cylinders from C-745-A, B, and C yards. C-745-A and B are leased to the United States Enrichment Corporation (USEC), and C-745-C is a very old yard, with cylinders stored in single rows on concrete pylons with wood chocks. It has poor-to-no drainage, and would be difficult to upgrade. Relocating these cylinders to C-745-T has the added benefit of having all DOE cylinders stored in the same central cylinder storage area on concrete saddles, and on new well-drained concrete yards. Due to space limitations for the temporary storage of cylinders in the yards being renovated, C-745-T must be constructed before any work can begin in C-745-K, L, M, N, or P yards.

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1. Title and Location of Project:	DUF6 cylinder storage yards, Paducah, Kentucky, gaseous diffusion plant	2a. Project No.: 96-U-201 2b Construction Funded

8. Project Description, Justification and Scope (Cont'd):

C-745-K, L, M, N, and P are newer gravel yards, some with improved drainage; however, cylinder handling traffic in these gravel yards continuously degrade them, destroys the drainage and allows the cylinder chocks to settle which put cylinders in contact with the ground and increases corrosion. The yards shall be constructed per the standard Paducah Gaseous Diffusion Plant (PGDP) 11 inch unreinforced concrete pad with adjacent and bisecting reinforced concrete haul roads for cylinder handling traffic.

The extensive storm water runoff drainage system will drain and collect all the rainwater from each of the yards into an existing retention/detention pond where it can be sampled and monitored before release to DOE-permitted outfall Kentucky Pollutant Discharge Elimination System (KPDES) 17. Currently, the cylinder yards do not drain well and often have standing water in them above the level of the cylinder bottoms after storms. Additionally, the current cylinder yards drain to five different outfalls of which only one is DOE permitted. The flows into outfall KPDES 17 should be directly attributable to the cylinder yards.

With the completion of these concrete yards, reinforced concrete haul roads, improved lighting and drainage the DOE DUF6 cylinders at PGDP will be in a stabilized condition for continued safe long-term storage.

9. Detail of Cost Estimate:

		Item Cost	Total Cost
a.	Design and Management Costs		$ 3,310
	1. Engineering design and inspection at approximately 3.3 percent of construction costs, Item c (Design, Drawing, and Specifications estimated at $272,000)	$ 552	
	2. Construction management costs at approximately 11.0 percent of Item c	1,806	
	3. Project management at approximately 5.8 percent of (Item c)	952	
b.	Land and land rights		0
c.	Construction costs		16,463
	1. Improvements to land	12,239	
	2. Buildings	0	
	3. Construction support	3,100	
	4. Utilities	1,124	
	5. Special facilities	0	
d.	Standard equipment		0
e.	Major computer items		0
f.	Removal cost less salvage		0
g.	Design and project liaison, testing checkout and acceptance		80
	Subtotal		19,853
h.	Contingencies at approximately 19.4 percent of above costs		3,847
I.	Total line item cost (Section 12. a 1. (a))		23,700
j.	Non-Federal Contribution		0
	Net Federal total estimated cost (TEC)		$ 23,700

1. Title and Location of Project:	DUF6 cylinder storage yards, Paducah, Kentucky, gaseous diffusion plant	2a. Project No.: 96-U-201 2b. Construction Funded	

10. Method of Performance:

DOE Oak Ridge Operations (OR) will manage the project, with the negotiate architect-engineer (A-E) contractor providing Title I and II site specific design and specific Title III as-built drawing support. The operating contractor will provide A-E support, project integration, site project management, and Title III inspection of construction. The construction manager and its fixed price subcontractors (FPSCs) will perform all major construction activities. The operating contractor will perform all process and utility tie-ins, and interfacing to the existing operations.

11. Schedule of Project Funding and Other Related Funding Requirements:

	Previous Years	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total
a. Total project costs							
1. Total facility costs							
(a) Line item (Section 10.1)	$ 0	$ 600	$ 6,000	$ 4,700	$ 8,700	$ 3,700	$ 23,700
(b) Oper. exp. funded equipment	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	$ 0	$ 600	$ 6,000	$ 4,700	$ 8,700	$ 3,700	$ 23,700
2. Other project costs							
(a) R&D necessary to complete project	0	0	0	0	0	0	0
(b) Conceptual design costs	120	0	0	0	0	0	120
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0	0
(d) NEPA documentation costs	23	187	0	0	0	0	210
(e) Other project-related costs	27	153	0	823	823	2,469	4,295
Total other project costs	170	340	0	823	823	2,469	4,625
Total project costs	170	940	6,000	5,523	9,523	6,169	28,325
(f) Non-Federal contribution	0	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 170	$ 940	$ 6,000	$ 5,523	$ 9,523	$ 6,169	$28,325

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1. Title and Location of Project:	DUF6 cylinder storage yards, Paducah, Kentucky, gaseous diffusion plant	2a. Project No.: 96-U-201 2b. Construction Funded	

11. Schedule of Project Funding and Other Related Funding Requirements (Cont'd):

b. Related annual funding (estimated life of project--25 years)

1.	Facility operating costs	$ 150
2.	Facility maintenance and repair costs	0
3.	Programmatic operating expenses directly related to the facility	0
4.	Capital equipment not related to construction but related to the programmatic effort in the facility	25
5.	GPP or other construction related to the programmatic effort in the facility	0
6.	Utility costs	50
7.	Other costs	0
	Total related annual funding	$ 225

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements:

a. Total project costs

1. Total facility costs

(a) Line item (Section 10) -- Construction Line Item costs for engineering, procurement, and construction of DUF6 cylinder storage yards project are estimated to be $23,700,000.

(b) Expense funded equipment -- No narrative required.

(c) Inventories -- No narrative required.

2. Other project costs

(a) R&D necessary to complete project -- No narrative required.

(b) Conceptual design costs -- To identify a Uranium Programs DUF6 cylinder storage yard, project for PGDP, a Conceptual Design Report was approved by DOE in May 1995 for $120,000.

(c) Decontamination and Decommissioning (D&D) -- No narrative required.

(d) NEPA documentation costs -- The construction of C-745-T Cylinder Storage Yard is expected to require a NEPA-Environmental Assessment. Estimated cost is $150,000.

The renovation of C-745-K, L, N, and P are expected to require a NEPA-Categorical Exclusion. Estimated cost is $60,000.

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1. Title and Location of Project:	DUF6 cylinder storage yards, Paducah, Kentucky, gaseous diffusion plant	2a. Project No.: 96-U-201 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (Cont'd):

(e) Other project-related costs -- Value Engineering Studies, Safety Assessments, Quality Assurance Plan, Site Characterization, Geotechnical Survey, and other miscellaneous supporting and project documentation will be prepared for $180,000. The programmatic operating expenses directly related to the facility included incremental management required for the operation of the C-745-G UF6 Cylinder Storage Yard and the annual expenses of cylinder movement and restacking in these yards. The cylinder movement and restacking from C-745-A, B, and C to C-745-T, and the movement between C-745-T and C-745-K, L, M, N, and P is estimated at $823,000 per year for the first five years starting in 1998. After 2003, all DOE cylinders will be located in the proper new concrete yards and should be stacked correctly.

(f) Non-Federal contribution -- No narrative required.

b. Related annual funding

1. Facility operating costs --The estimated cost of opening C-745-G UF6 Cylinder Yard is minimal; however the storm water collection retention/detention pond will require periodic sampling, testing, and release of the rain water from the pond to KPDES outfall 17. This cost is estimated at $150,000 annually and should only require one employee periodically.

2. Facility maintenance and repair costs -- No narrative required.

3. Programmatic operating expenses directly relating to the facility -- No narrative required.

4. Capital equipment not related to construction but related to the programmatic effort in the facility -- Capital equipment purchases estimated at $25,000 for additional or upgraded UF6 trailers may be necessary to support the movement of cylinders from C-745-A, B, and C to C-745-T.

5. GPP or other construction related to the programmatic effort of the facility -- No narrative required.

6. Utility costs -- The cylinder yard will require electrical service estimated at $50,000 per year.

7. Other costs -- No narrative required.

13. Design and Construction of Federal Facilities:

All DOE facilities are designed and constructed in accordance with applicable public laws, executive orders, OMB circulars, Federal property management regulations, and DOE orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards," Section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960), and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988.

1.	Title and Location of Project	DUF6 cylinder storage yards, Paducah, Kentucky, gaseous diffusion plant	2a. Project No.: 96-U-201 2b. Construction Funded

14. Supplemental Project Data for Facility Utilization:

a. Facility Utilization Requirements

b. Future Capabilities Assurance of this Project
Expansion Capabilities:
Capabilities for Change:
Decontamination or Retirement Features.

This project will be sited in accordance with the PGDP development and facilities utilization plan.

Isotope Production and Distribution

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OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY
ISOTOPE PRODUCTION AND DISTRIBUTION PROGRAM

PROGRAM MISSION

The Department, through the Isotope Production and Distribution (IP&D) program, provides radioactive and stable isotope products and associated services to a wide and varied domestic and international market. These products and services are produced, processed and provided using DOE facilities and scientific capabilities which exist to satisfy other Departmental research and production missions.

The IP&D program operates under a revolving fund and maintains financial continuity through its revenues and through payments from the Isotope Support decision unit, which is funded through Congressional appropriations. The IP&D program has two primary missions. The first mission is to produce and distribute certain low-volume radioisotopes and enriched stable isotopes for research and development, medical diagnoses and therapy, and other applications that are in the national interest. The second mission is to produce and distribute high-volume radioisotopes and enriched stable isotopes for medical, industrial, agricultural, and other useful applications on a business-like basis. In carrying out these missions, the Department will seek to divest from ventures that can be operated by the private sector at a reduced cost to the Government. The FY 1997 budget request under the Isotope Support decision unit is $12.7 million . This budget request combined with projected revenues of $11.0 million should provide the revolving fund sufficient funding to meet total estimated program expenses of $23.7 million.

The GOAL of the IP&D program is to:

Maintain financial viability to ensure a reliable supply of medical, research, and industrial isotopes consistent with customer needs.

The OBJECTIVES related to these goals are:

1. Manage production and distribution of selected isotopes reliably and cost effectively in coordination with other isotope producers.

2. Develop improved means of producing and separating isotopes.

3. Promote privatization of isotope production.

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PERFORMANCE MEASURES:

1. Developed and implemented a Five-Year Business Plan (FYBP) by the end of October 1995.

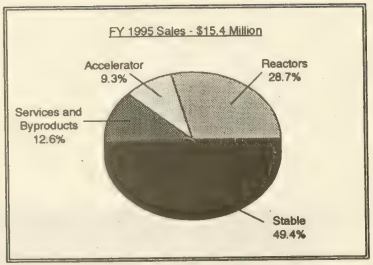
2. Determine whether to produce Mo-99 pending on-schedule completion of the Environmental Impact Statement.

3. Obtain Food and Drug Administration (FDA) approval for domestic Mo-99 production by mid-FY 1997, if initiative is pursued.

4. Prioritize and select process development projects by September 1997.

5. Attain gross profit of 14 percent by September 1997.

6. Achieve 95 percent on-time deliveries by September 1997.



Isotope Sales By Production Category

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- The ORNL calutrons will continue to operate and produce several stable isotopes used in medical applications as required to meet demand.
- Based on actual stable isotope sales in FY 1995, the IP&D program has regained over 45 percent of worldwide sales of stable isotopes and should continue this pace through FY 1996 and FY 1997.
- The IP&D program will continue to establish Cooperative Research and Development Agreements (CRADAs) or other appropriate agreements to supplement Departmental production of isotopes and related services. Two examples in FY 1995 were: Tin-117m used in bone cancer therapy and Yttrium-90 used in non-Hodgkins lymphoma therapy.
- An FYBP is currently being developed and will be issued in April 1996. The FYBP will serve as a formal corporate plan on how and what will be accomplished within available resources and will integrate the planning and budget cycles.
- The IP&D program will maintain financial viability through its revenues and the Isotope Support appropriation.
- The IP&D program will continue to provide hundreds of products and related services worldwide essential for medical, research, industrial, and agricultural applicants.
- Continued study of Mo-99 initiative, including environmental evaluation and process validation..

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ISOTOPE PRODUCTION AND DISTRIBUTION PROGRAM

PROGRAM FUNDING PROFILE
(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Isotope Production & Distribution Program	$ 30,375	$ 34,158	$ 500	$ 34,658	$ 23,704
Less: Transfer from Isotope Support in Energy Supply R&D	-20,875	-24,658	0	-24,658	-12,704
Revenues from Sales	$ 9,500	$ 9,500	$ 500	$ 10,000	$ 11,000

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ISOTOPE PRODUCTION AND DISTRIBUTION PROGRAM

PROGRAM OBJECT CLASS SUMMARY
(Dollars in Thousands)

	FY 1995 Comp.	FY 1995 Non-comp.	FY 1996 Comp.	FY 1996 Non-comp.	FY 1997 Request
25.2 Other Services	$ 9,500	$ 9,500	$ 10,000	$ 10,000	$ 11,000
99.0 TOTAL REVENUES	**$ 9,500**	**$ 9,500**	**$ 10,000**	**$ 10,000**	**$ 11,000**
Total Transfer from Isotope Support In Energy Supply R&D	18,810	17,409	23,078	23,078	11,124
99.9 Total Obligations	**$ 28,310**	**$ 26,909**	**$ 33,078**	**$ 33,078**	**$ 22,124**

1988

ISOTOPE PRODUCTION AND DISTRIBUTION PROGRAM
(Dollars in Thousands)

I. Mission Supporting Goals and Objective

The Department, through the IP&D program, provides radioactive and stable isotope products and associated services to a wide and varied domestic and international market. Ultimate applications of isotopes products include medical research and health care, industrial research and manufacturing, education, and national defense. The IP&D program has two primary missions. The first mission is to produce and distribute certain low-volume radioisotopes and enriched stable isotopes for research and development, medical diagnoses and therapy, and other applications that are in the national interest. The second mission is to produce and distribute high-volume radioisotopes and enriched stable isotopes that have profit potential for medical, industrial, and other useful applications on a business-like basis.

II. Funding Schedule

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Isotope Production & Distribution Program	$ 30,375	$ 34,158	$ 500	$ 34,658	$ 23,704
Less: Transfer from Isotope Support in Energy Supply R&D	-20,875	-24,658	0	-24,658	-12,704
Revenues from Sales	$ 9,500	$ 9,500	$ 500	$ 10,000	$ 11,000

III. Performance Summary

FY 1995 Accomplishments:

- Completed the environmental evaluation as part of the National Environmental Protection Act process for Mo-99 initiative.
- Restarted calutrons at Oak Ridge to provide essential medical and research isotopes.
- Executed five isotope CRADAs for advancing isotope production and processing techniques.
- Achieved gross profit of more than 10 percent.
- Increased revenues by 15 percent.
- Achieved 90 percent on-time deliveries.

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FY 1995 Accomplishments continued:

- Provided for continued study of Mo-99 initiative, including environmental evaluation and process validation.
- Maintained financial viability of the IP&D program through its revenues and the Isotope Support decision unit.
- Assured an adequate supply of isotopes to be used for medical diagnoses and therapy, other applications in the national interest, calutron operations to replenish inventories, and administrative activities.

FY 1996 Accomplishments (to date and planned):

- Determine whether to produce Mo-99, pending result of the Environmental Impact Statement.
- Achieve 95 percent on-time deliveries.
- Achieve gross profit of 12 percent.
- Increase overall revenues from isotope sales by 5 percent (if some DOE production facilities are privatized, DOE's share of revenues will decrease).
- Maintains financial viability of the IP&D program.
- Assures an adequate supply of isotopes to be used for medical diagnoses and therapy, other applications in the national interest, calutron operations to replenish inventories, and administrative activities.

FY 1997 Accomplishments:

- Obtain Food and Drug Administration (FDA) approval for domestic Mo-99 production, if initiative is pursued.
- Plan and fund prioritized process development projects.
- Achieve gross profit by 15 percent.
- Stabilize revenues.
- Continue calutron operations for the production of stable isotopes.

1390

FY 1997 Accomplishments: - continued

- Assures an adequate supply of isotopes to be used for medical diagnoses and therapy, other applications in the national interest, calutron operations to replenish inventories, and administrative activities.

Explanation of Funding Changes FY 1996 to FY 1997:

A total IP&D program reduction of $11,954,000 in FY 1997 reflects the decision to determine whether to fund Mo-99 within the overall DOE budget pending the conclusion of the Environmental Impact Statement during the Spring of 1996.

The revenue increase of $1,000,000 is due to the sale of stable isotopes including Helium-3.

Nuclear Waste Disposal Fund

1392

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Nuclear Waste Disposal Fund					
Discretionary funding	365,271	122,305	200,028	77,723	63.5%
Program direction	27,359	29,321	—	-29,321	-100.0%
Total, Nuclear Waste Disposal Fund	**392,630**	**151,626**	**200,028**	**48,402**	**31.9%**

1393

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
NUCLEAR WASTE DISPOSAL FUND

PROPOSED APPROPRIATION LANGUAGE

For nuclear waste disposal activities to carry out the purposes of Public Law 97-425, as amended, including the acquisition of real property or facility construction or expansion, [$151,600,000] $200,028,000 to remain available until expended, to be derived from the Nuclear Waste Fund, of which not to exceed $5,000,000 may be provided to the State of Nevada, solely for the conduct of its scientific oversight responsibilities pursuant to the Nuclear Waste Policy Act of 1982, (Public Law 97-425), as amended; and of which not to exceed $6,400,000 may be provided to affected local governments, as defined in Public Law 97-425, to conduct appropriate activities pursuant to the Act: *Provided further*, That the distribution of the funds herein provided among the affected units of local government shall be determined by the Department of Energy and made available to the State and affected units of local government by direct payment: *Provided further*, That within ninety days of the completion of each Federal fiscal year, each State or local entity shall provide certification to the Department of Energy, that all funds expended from such payments have been expended for activities as defined in Public Law 97-425. Failure to provide such certification shall cause such entity to be prohibited from any further funding provided for similar activities: *Provided further*, That none of the funds herein appropriated may be: (1) used directly or indirectly to influence legislative action on any matter pending before Congress or a State legislature or for lobbying activity as provided in section 18 U.S.C. 1913; (2) used for litigation expenses; or (3) used to support multistate efforts or other coalition building activities inconsistent with the restrictions contained in this Act.

1994

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

EXECUTIVE BUDGET SUMMARY

OVERVIEW

The mission of the Office of Civilian Radioactive Waste Management (OCRWM) is to manage and dispose of the Nation's spent nuclear fuel and high-level radioactive waste. The office provides leadership in developing and implementing strategies to accomplish this mission that assure public and worker health and safety, protect the environment, merit public confidence, and are economically viable.

To achieve our mission, the OCRWM Program has defined the following strategic goals:

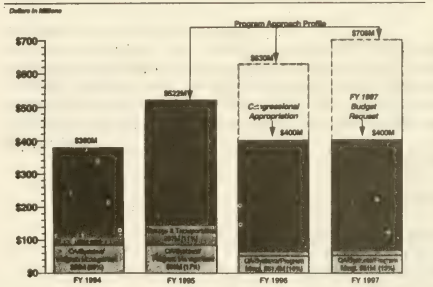
The Office was established by the Nuclear Waste Policy Act (NWPA) of 1982 to dispose of spent nuclear fuel and high-level radioactive waste from commercial and defense activities in a permanent geologic repository. The Nuclear Waste Policy Amendments Act (NWPAA) of 1987 designated the Yucca Mountain, Nevada site (Figure 1) for detailed scientific investigation to evaluate the site's suitability for a geologic repository. [The NWPAA also authorized the siting, construction, and operation of a Monitored Retrievable Storage (MRS) facility, subject to certain conditions.]

Figure 1: Progress being made at the Exploratory Studies Facility, North Portal. View from Exile Hill.

The OCRWM FY 1997 Congressional Budget Request of $400 million includes $200 million discretionary funding from the Defense Nuclear Waste Disposal Appropriation and $200 million discretionary funding from the Nuclear Waste Disposal Fund. The structure of the FY 1997 Congressional budget request has been significantly revised to reflect the Congressional program redirection mandated in the FY 1996 Energy and Water Development Appropriations Act.

The FY 1996 Energy and Water Development Appropriations Act provided a total of $400 million for the Program. However, $85 million of the total appropriation is reserved to be used for an interim storage facility and would become available for expenditure only upon enactment of new statutory authority. Funds to implement the current program are, therefore, effectively reduced to $315 million. The consequence is a 40% reduction from the FY 1995 level of expenditure ($522 million). Based on Congressional guidance, the Program has allocated $250 million of the available funds to preserve the core scientific work at the Yucca Mountain site.

Budget Distribution Comparison



The previous Program Approach which was the basis for the FY 1995 and FY 1996 budget request is no longer feasible. See budget chart left side, this page.

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT

Consistent with the Program redirection, the mission at the Yucca Mountain site has been refocused to emphasize: Core Scientific Activity, Excavation of the Exploratory Tunnel (Figure 2), and Completion of the Repository and Waste Package Conceptual Design.

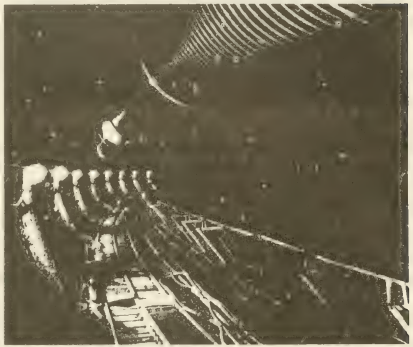


Figure 2: Photograph illustrating the progress of the Exploratory Tunnel nearly 2 miles into Yucca Mountain.

Figure 3: View of the mapping gantry on the Tunnel Boring Machine. Geologists can perform mapping and sampling tests while the machine is operating.

Prior to the recent appropriation action, the Program was on schedule to reach an early decision on the technical suitability of the Yucca Mountain site in the FY 1998 time frame and to meet the Program's other major milestones, including the submission of a license application in FY 2001, culminating in emplacement of spent nuclear fuel in a repository by 2010. See Figures 3-7. However, current and possible future funding constraints appear to have foreclosed this schedule. The $315 million appropriation in FY 1996 does not support the Program Approach. Instead, as directed by the Congress in the Conference Report, the Program plans to address the major unresolved technical questions regarding the conceptual design of the repository and its expected performance in a geologic setting.

Consistent with the guidance, the Program has defined a new deliverable for the Yucca Mountain Project which would take the form of a Viability Assessment. This package of deliverables would provide the requisite information for a determination in the FY 1998/FY 1999 time frame of the viability of continuing with the licensing of a geologic repository at the Yucca Mountain site. With appropriate policy and funding support, the license application target can be regained, but at a later date.

The Program has defined the following set of deliverables for the Viability Assessment which can be completed in the FY 1998/ FY 1999 time frame.

First, a package of more specific design work on the critical elements of the repository concept and the waste package that demonstrate that technologies are available to accomplish the objectives of geologic disposal. This will require resolution of critical unresolved issues in the waste isolation strategy, criticality control, and thermal loading;

Second, a total system performance assessment keyed to those design concepts, and based upon the analysis of the data available, which will describe the probable behavior of the repository;

Third, an estimate of the cost to construct and operate the repository;

Fourth, a plan and cost estimate for the remaining work required to complete a license application.

Activities that are deferred in FY 1996 include preparation of a license application to the Nuclear Regulatory Commission and environmental impact statement activities which support the Secretary's required site recommendation to the President.

Figure 4: The cutterhead of the "Alpine Miner" used in constructing test Alcove #2. Without interruption of the Tunnel Boring Machine operation, construction was completed ahead of schedule.

Figure 6: Drill rigs in place. Drilling data on rock quality and properties will be provided to tunnel designers and will support hydrologic models and tectonic studies.

Figure 5: A view of the Tunnel Boring Machine completing the 617 meter curve.

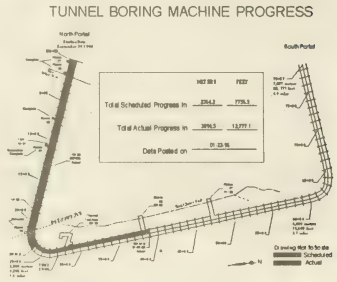


Figure 7: Progress of the Tunnel Boring Machine is being tracked on a daily basis. The machine is operating at near-commercial rates and is ahead of schedule.

WASTE ACCEPTANCE, STORAGE AND TRANSPORTATION

Waste Acceptance activities focus on plans for transferring waste to the Federal Government from the owners and generators of spent nuclear fuel and high-level radioactive waste. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities. The FY 1997 activities will focus on planning for generic interim storage activities and for a national transportation capability.

PROGRAM INTEGRATION

Program Integration consists of activities and tasks that support all of the Program Element areas. Specifically, the Program Integration area includes the traditional areas of Quality Assurance, Program Management, Human Resources and Administration, and Federal Salaries.

ISSUES

Rationalize the Repository Licensing Approach

The Nation must revisit the regulatory structure that guides the licensing of the repository to reflect the experience of the past decade of work; the policy changes adopted since enactment of the Nuclear Waste Policy Act; and the realities of the budgetary constraints on the Program.

The current licensing approach is based upon conforming to Nuclear Regulatory Commission and Departmental regulations, which were promulgated prior to the 1987 Amendment to the Nuclear Waste Policy Act.

- The Departmental regulations involve making determinations about the physical characteristics of several candidate sites for the purpose of selecting the best prospect.

The Nuclear Waste Policy Amendments Act of 1987 directed the Program to consider only one site. Its physical aspects are only relevant if, and to the extent that, they affect the ability of that site to safely isolate wastes.

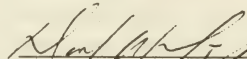
- The Program should determine a strategy for the containment and isolation of the waste to be emplaced in the repository; design a proposed repository; and provide the data to support a safety showing before the Nuclear Regulatory Commission for geologic disposal at the Yucca Mountain site should it be judged viable.

Interim Storage

An interim storage decision needs to consider the results of the Yucca Mountain Viability Assessment.

- The Administration has taken the position that any consideration of Nevada as an Interim Storage Facility should be deferred until the viability of Yucca Mountain as a repository site has been determined.

- The Viability Assessment for Yucca Mountain will be completed in the FY 1998/FY 1999 time frame.



Daniel A. Dreyfus, Director
Office of Civilian Radioactive Waste Management

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

PROGRAM MISSION

The mission of the Office of Civilian Radioactive Waste Management (OCRWM) is to manage and dispose of the Nation's spent nuclear fuel and high-level radioactive waste. The office provides leadership in developing and implementing strategies that assure public and worker health and safety, protect the environment, merit public confidence, and are economically viable.

The Office was established by the Nuclear Waste Policy Act (NWPA) of 1982, as amended, to dispose of spent nuclear fuel and high-level nuclear waste from commercial and defense activities in a permanent geologic repository. The Nuclear Waste Policy Amendments Act (NWPAA) of 1987 designated the Yucca Mountain, Nevada, site for detailed scientific investigation to evaluate the site's suitability for a geologic repository. The NWPAA also authorized the siting, construction, and operation of a Monitored Retrievable Storage (MRS) facility, subject to certain conditions.

Successfully implementing a strategy for accepting, managing, and disposing of our Nation's spent nuclear fuel has: Environmental, Non-Proliferation, International, Energy, and Equity implications for National Policy. The program serves the Nation's Environmental interests by pursuing a geologic site for the permanent disposal of high-level radioactive waste from the country's atomic weapons activities and commercial spent nuclear fuel. Providing an ultimate disposal site for commercial spent nuclear fuel will reduce the need for at-reactor storage which has been identified as a significant environmental concern. OCRWM's mission to provide for the direct disposal of spent nuclear fuel directly supports the Non-Proliferation strategy of the United States. The Federal government decided in the 1970s that reprocessing spent fuel to recover reusable plutonium was no longer a necessary part of the nuclear fuel cycle, and should be discouraged along with the commercial use of plutonium-based fuels because of the risks of nuclear proliferation. The Federal government made a commitment to provide for the direct disposal of spent fuel. Continuing with the effort to provide for the geologic disposal of spent nuclear fuel strengthens the country's ability to influence the commercial trade in plutonium by the international community. There is worldwide agreement to proceed with the development of geologic repositories by International community. If the United States were to abandon the pursuit of geologic disposal it could undermine the long-term waste management program of other nations. The mission of OCRWM directly supports the Energy interests of the United States by helping to ensure that the operation of nuclear reactors which supply approximately 20 percent of the nation's electricity is orderly and continuous. Successful execution of this mission will support the Equity arrangement intended by the original legislation funding approach which is designed to ensure that the costs of permanent disposal of spent nuclear fuel are borne by the beneficiaries of nuclear-generated electricity. Unless a sound program is aggressively pursued in the near-term, an open-ended financial obligation will be imposed on future taxpayers to finance the maintenance of storage facilities and, later, finance the development of a permanent disposal system.

In FY 1995, OCRWM completed a comprehensive program assessment. The assessment included input from Congress, the Administration, and Program Stakeholders. In response to this comprehensive assessment, OCRWM developed the Program Approach. The Program Approach identified three key components which are vital to successfully realizing the program mission. The key components were: focusing on early site suitability evaluation of Yucca Mountain by realigning our site characterization activities and supporting those activities with increased funding and staff; addressing the realities of near-term management of spent fuel by resolving the waste acceptance issue and defining the Department's role for near term storage; developing a Multi-Purpose Canister system that is integrated into all program elements. The Program Approach required that OCRWM restructure its previous plans, as reflected in the OCRWM FY 1996 Congressional budget request. The aggressive time line and comprehensive scope of the Program Approach assumed an increased future funding profile which was also contained in the FY 1996 budget request.

In the FY 1996 Energy and Water Development Appropriations, the level of funding provided to OCRWM was $315.0 million below the level requested to support the Program Approach. In addition, Congress mandated a program redirection. The structure of the FY 1997 budget request has been significantly revised to reflect the Congressional program redirection mandated in the FY 1996 Energy and Water Development Appropriations Act. The OCRWM FY 1997 Congressional budget request of $400 million includes $200 million discretionary funding from the Defense Nuclear Waste Disposal appropriation and $200 million discretionary funding from the Nuclear Waste Disposal Fund.

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT

Consistent with the program redirection, the mission at the Yucca Mountain Nevada site has been refocused to emphasize: Core Scientific Activity, Excavation of the Exploratory Tunnel and Completion of the Repository and Waste Package Conceptual Design. Prior to the recent appropriations action, the Program was on schedule to reach an early decision on the technical suitability of the Yucca Mountain site in the FY 1998 time frame. The Program was also scheduled to meet other major milestones, including the submission of a license application in FY 2001, culminating in emplacement of spent nuclear fuel in a repository by 2010. The $315 million appropriation in FY 1996 does not support these activities. As directed by Congress in the FY 1996 Energy and Water Development Committee on Appropriations Conference Report, we now plan to continue addressing major unresolved technical questions regarding the conceptual design of the repository and its expected performance in a geologic setting.

Consistent with this guidance, we have defined a new deliverable for the Yucca Mountain Project which will take the form of a Viability Assessment. This package of deliverables would provide the requisite information for a determination in the FY 1998-1999 time frame of the viability of continuing toward the licensing of Yucca Mountain as a geologic repository.

The Program has defined the following set of deliverables for the Viability Assessment which can be completed in FY 1998-1999. First, a package of increased specific design work on the critical elements of the repository concept and the waste package that demonstrates that technologies are available to accomplish the objectives of geologic disposal, this will require resolution of critical unresolved issues in the waste isolation strategy, criticality control, and thermal loading; second, a total system performance assessment keyed to those design concepts, and based upon the analysis of the data available, which will describe the probable behavior of the repository; third, an estimate of the costs to construct and operate the repository; and fourth, a plan and cost estimate for the remaining work required to complete a license application.

Activities that are deferred in FY 1996 include preparation of a license application for submittal to the Nuclear Regulatory Commission and environmental impact statement activities both of which will eventually be required to support the Secretary's required site recommendation to the President.

WASTE ACCEPTANCE, STORAGE AND TRANSPORTATION

Waste Acceptance activities include those legal and institutional responsibilities related to the transfer of waste to the Federal Government from the owners and generators of spent nuclear fuel and high-level waste. In projecting past the FY 1997 budget requirements, the Department has assumed that the Congress and the Administration will arrive at a policy determination concerning interim storage upon completion of the Viability Assessment in the FY 1998-1999 timeframe. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities. The FY 1997 activities will focus on planning for generic interim storage activities and for a national transportation capability.

PROGRAM INTEGRATION

Program Integration consists of activities and tasks that support all of the program element areas. Specifically, the Program Management and Integration element includes the traditional areas of Program Management, Quality Assurance, Human Resources and Administration, and Federal Salaries.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
PROGRAM FUNDING PROFILE
(Tabular dollars in thousands)

PROGRAM ELEMENT	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request	FY 1998 Budget Request	FY 1999 Budget Request
YUCCA MOUNTAIN SITE CHARACTERIZATION	$ 375,270	$ 250,000	$ 0	$ 250,000	339,364	$ 330,000	$ 250,000
WASTE ACCEPTANCE, STORAGE AND TRANSPORTATION	56,729	13,600	0	13,600	10,000		36,343
PROGRAM INTEGRATION:							
Quality Assurance	13,967	5,147	0	5,147	1,900	1,122	2,080
Program Management	24,673	7,458	0	7,458	8,055	4,697	8,703
Human Resources & Administration	24,062	9,500	0	9,500	10,200	5,502	10,195
Total Program Integration	62,702	22,105	0	22,105	20,155	11,321	20,978
PROGRAM DIRECTION	27,359	29,295	26	29,321	30,509	26,679	26,679
CONGRESSIONAL RESERVE a/	$ --	$ 85,000 a/	$ 0	$ 85,000 a/	--	$ --	$ --
TOTAL PROGRAM	$ 522,060	$ 400,000	$ 26	$ 400,026	$ 400,028	$ 368,000	$ 334,000
FUNDING:							
Nuclear Waste Disposal Fund	392,630	151,600	26	151,626	200,028	184,000	167,000
Defense Nuclear Waste Disposal Appropriation	129,430	248,400 a/	0	248,400 a/	200,000	184,000	167,000
TOTAL, PROGRAM FUNDING	$ 522,060	$ 400,000	$ 26	$ 400,026	$ 400,028	$ 368,000	$ 334,000
STAFFING (FTE's):							
HQ FTE's	224	218	0	218	200	176	162
Field and DOE Matrix Support FTE's	34	30	0	30	30	30	30
TOTAL FTE's	258	248	0	248	230	206	192

Authorizations: P.L. 97-425, "Nuclear Waste Policy Act" (1982); P.L. 100-203, "Nuclear Waste Policy Amendments Act" (1987)

a/ The FY 1996 Energy and Water Development Appropriation Act reserved $85M in the Defense Nuclear Waste Disposal Appropriation which shall be available for obligation and expenditure only for an interim storage facility and only upon the enactment of specific statutory authority. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
PROJECTED RECEIPTS AND FUNDING BY FISCAL YEAR
(Dollars in thousands)

	FY 1995 *	FY 1996	FY 1997	FY 1998	FY 1999
One mill/kWh Fee 1/	615,374	630,200	636,500	636,500	636,500
Fee Credits 2/	(18,543)	--	--	--	--
One-time Fee	0	0	0	0	0
Subtotal	596,831	630,200	636,500	636,500	636,500
Investment 3/	242,000	278,000	321,000	368,000	415,000
Subtotal	838,831	908,200	957,500	1,004,500	1,051,500
Less: Unrealized Discount	--	--	--	--	--
Total Income	838,831	908,200	957,500	1,004,500	1,051,500
Program Funding:					
Nuclear Waste Disposal Fund	392,630	151,626	200,028	184,000	167,000
Defense Nuclear Waste Appropriation	129,430	248,400 4/	200,000	184,000	167,000
Total, Program Funding	522,060	400,026	400,028	368,000	334,000

1/ Based on Oct 4, 1995, EIA forecast memo to OCRWM.
2/ Result of Consolidated Edison v. DOE, decided March 17, 1989.
3/ Represents net earnings on investments available for appropriation.
4/ The FY 1996 Energy and Water Development Appropriation Act reserved $85M in the Defense Nuclear Waste Disposal Appropriation which shall be available for obligation and expenditure only for an interim storage facility and only upon the enactment of specific statutory authority. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities.
* FY 1995 reflects actuals.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
(Tabular dollars in thousands)
PROGRAM FUNDING BY SITE

LABORATORY/PLANT/INSTALLATION	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request	FY 1998 Budget Request	FY 1999 Budget Request
Congressional Reserve a/	$ 0	$ 85,000 a/	$ 0	$ 85,000 a/	$ 0	$ 0	$ 0
Argonne National Laboratory	2,950	450	0	450	496	0	0
Chicago Operations Office	231	50	0	50	50	52	54
Idaho National Engineering	3,210	328	0	328	0	0	0
Lawrence Berkeley Lab	4,915	3,105	0	3,105	4,300	4,435	3,530
Lawrence Livermore National Lab	17,335	8,886	0	8,886	12,311	12,711	10,106
Los Alamos National Lab	20,740	9,822	0	9,822	13,609	14,039	11,169
Nevada Operations Office	100,083 b/	44,867	0	44,867	63,269	65,813	49,737
Nevada Test Site	4,795	7,000	0	7,000	9,700	10,005	7,960
Oak Ridge Institute for Science and Education	176	25	0	25	26	27	28
Oak Ridge National Laboratory	563	0	0	0	0	0	0
Oak Ridge Operations Office	728	326	0	326	264	274	284
Pacific Northwest Laboratory	245	65	0	65	100	100	75
Richland Operations Office	162	85	0	85	87	90	94
Sandia National Laboratories	17,053	6,624	0	6,624	9,176	9,466	7,531
Washington Headquarters (Includes Yucca Mountain Project Office) c/	348,874	233,367	26	233,393	286,640	250,987	243,431
TOTAL PROGRAM	$ 522,060	$ 400,000 a/	$ 26	$ 400,026 a/	$ 400,028	$ 368,000	$ 334,000

a/ The FY 1996 Energy and Water Development Appropriation Act reserved $85M in the Defense Nuclear Waste Disposal Appropriation which shall be available for obligation and expenditure only for an interim storage facility and only upon the enactment of specific statutory authority. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities.

b/ Includes Financial Assistance to the State of Nevada, and Affected Units of Local Government and includes funding for contracts administered in Nevada (i.e. USGS, National Academy of Science, Universities, etc.)

c/ Includes all funding for contracts administered at headquarters which include work both at Nevada and Washington Headquarters (i.e. Management and Operating contractor, Support Services contracts, etc.)

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
PROGRAM OBJECT CLASS SUMMARY
NUCLEAR WASTE ACTIVITIES
(Dollars in Thousands)

Direct Obligation:	FY 1995 Non Comparable	FY 1995 Comparable	FY 1996 Non Comparable	FY 1996 Comparable	FY 1997	FY 1998	FY 1999
25.2 Other services.....	329,401	322,007	135,286	122,305	169,519	157,321	140,321
41.0 Grants and subsidies.....	30,283	30,283	0	0	0	0	0
99.0 Total, Direct Obligations.....	359,684	352,290	135,286	122,305	169,519	157,321	140,321
Defense Nuclear Waste Disposal Appropriation	129,480	129,430	163,400	163,400	200,000	184,000	167,000
Congressional Reserve	--	--	85,000 b/	85,000 b/	--	--	--
Total Defense Nuclear Waste Disposal Appropriation	$ 129,480	$ 129,430	$ 248,400	$ 248,400	$ 200,000	$ 184,000	$ 167,000
Total Program	489,164 a/	481,720	383,686 a/	370,705	369,519	341,321	307,321
FUNDING:							
Nuclear Waste Disposal Fund	359,684	352,290	135,286	122,305	169,519	157,321	140,321
Defense Nuclear Waste Disposal Appropriation	129,480	129,430	248,400 b/	248,400 b/	200,000	184,000	167,000
TOTAL FUNDING	$ 489,164	$ 481,720	$ 383,686	$ 370,705	$ 369,519	$ 341,321	$ 307,321

a/ Reflects the use of prior years unobligated balances

b/ The FY 1996 Energy and Water Development Appropriation Act reserved $85M in the Defense Nuclear Waste Disposal Appropriation which shall be available for obligation and expenditure only for an interim storage facility and only upon the enactment of specific statutory authority. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
NUCLEAR WASTE FUND
(Dollars in thousands)

YUCCA MOUNTAIN SITE CHARACTERIZATION

I. Mission Supporting Goals and Objectives

The ultimate mission of the Yucca Mountain Site Characterization Program Element is to determine the suitability of the site to become a deep geologic repository for the nation's spent nuclear fuel and high-level defense nuclear waste; complete activities for a Presidential recommendation and license application submittal, and prepare the required Environmental Impact Statement (EIS).

The FY 1995 Program Plan, reflecting the revised Program Approach was developed to focus on only those tests and analysis critical to an early suitability evaluation and subsequent development of an EIS and license application. The major goals of the Program Approach were to (1) evaluate the Technical Site Suitability of the Yucca Mountain Site by the end of fiscal year (FY)1998; (2) develop a draft repository EIS and issue it for public comment by the end of FY 1999; (3) if the Yucca Mountain site appears suitable, deliver a Site Recommendation Report and a final EIS to the President by the end of FY 2000; and (4) if the President and Congress approve the site, submit a license application for repository construction to the Nuclear Regulatory Commission (NRC) in FY 2001.

The Program Element remains committed to the long-term objectives of site characterization and, if the site is suitable, completion of a docketable license application. In response to congressional redirection of this Program Element in the FY 1996 Energy and Water Appropriations Act, the near-term mission of this Program Element has been refocused to emphasize: core scientific activity; excavation of the Exploratory Tunnel; and completion of the repository and waste package conceptual design for later submission to the Nuclear Regulatory Commission. The near-term effort is on completion of a Viability Assessment, a major new deliverable. The purpose of the Viability Assessment is to provide sufficient scientific, financial and licensing data to demonstrate the practicability of continuing with an EIS and License Application. The contents of the Viability Assessment are: (1) a geologic repository (disposal system) design sufficient for evaluation of performance and costs of development; (2) total system performance assessment (TSPA); (3) schedule and cost estimates for completion of an EIS and License Application; and (4) An estimate of the costs to construct and operate the repository.

The focus of Viability Assessment activities in FY 1997 is to begin the development of a TSPA and a design of the repository and waste package in sufficient detail to evaluate the feasibility and performance of each. This will require resolution of critical unresolved issues in the waste isolation strategy, criticality control, and thermal loading. Continued development of site investigations synthesis reports and updated process models, the re-institution of repository EIS activities, and completing excavation of the Exploratory Studies Facility (ESF) main drift and providing the required test

data. The objectives for FY 1998 are to complete the TSPA and the Viability Assessment; start preliminary license application design for the repository and waste package; continue with the operations of the ESF; and conduct EIS activities and appropriate licensing application activities.

The activities supporting the accomplishment of the goals of the Program Element are: Operations/Construction, Core Science, Design and Engineering, Performance Assessment, Licensing/Suitability, National Environmental Policy Act (NEPA), Project Management, and Department of Energy Oversight, Payment Equal to Taxes (PETT), and Closeouts. The scope of these activities is described below. The repository EIS technical support and the technical support services contract will be awarded. Licensing/Suitability will be minimal in FY 1997 and will be coincident to the work funded in the other categories.

Operations/Construction:

Operations and construction includes coordination, planning, operation, and maintenance of the tunnel boring machine (TBM); construction of alcoves for scientific testing; instrumentation installation, operations and maintenance to acquire the test data necessary for the Viability Assessment, and surface and subsurface facilities related to the ESF and the drilling program. Also included is the safety and health program, which provides for the protection of employees, members of the public, and the environment; and field support services procured from the Nevada Test Site.

Core Science:

Core Science is comprised of field data collection from surface, subsurface, and drilling efforts; environmental and scientific data collection, monitoring, and requirements compliance; laboratory experiments; site and materials performance testing; scientific test planning and design; modeling and data and hypothesis analysis; input to and development of the Program Element technical data bases; completion of models and synthesis reports that serve as the basis for the geologic and hydrologic descriptions used in the Viability Assessment and future site recommendation, NEPA and licensing documentation.

Design and Engineering:

Design and Engineering includes coordination and planning of waste package and repository surface and subsurface and the balance of the ESF design; preparation and maintenance of design requirements documents and design control; integration and review; trade studies and cost estimates; performance testing; modeling programs for waste forms and waste packages; and quality assurance oversight and training. Also included are the optimization of repository design issues; transportation requirements and preparation and development of the repository and waste package input to the Viability Assessment and future site recommendation, NEPA and licensing documentation.

Performance Assessment:

Performance Assessment includes the calculations and modeling efforts associated with total system and subsystem performance analysis, for both the repository preclosure and postclosure periods. Performance assessment produces

evaluations of repository system behavior based on calculations and numeric modeling of physical processes and parameters affecting the potential migration of radionuclides through the geosphere. Performance assessment quantitatively evaluates the ability of the natural and engineered barrier systems to meet preclosure and postclosure performance objectives. Included is the management and control of the supporting technical databases and the coordination and planning for the Viability Assessment. Also included are interactions with the NRC, Nuclear Waste Technical Review Board (NWTRB), and other oversight groups.

Licensing/Suitability:

The objective of the licensing program is to prepare a license application for submittal to the NRC. The content and quality of the license application information should be such that the NRC would accept it for docketing upon submittal and be able to grant a construction authorization after the three-year review period mandated by the Nuclear Waste Policy Act, As Amended (NWPAA).

The overall objective of the site suitability program is to conduct site studies and perform analyses and evaluations necessary to enable the Director to reach findings for the qualifying and disqualifying conditions and, if the site appears to be suitable, develop a Site Recommendation Report. Specific objectives to achieve this goal are to provide demonstrable measures of technical progress toward developing a siting guidelines evaluation during site characterization.

NEPA:

NEPA compliance activities including the conduct of scoping meetings; reviewing and responding to public scoping comments; data gathering and impact analyses and; consultations with other agencies and Native American Indian tribes; all of which will lead to development and issuance of a DEIS. This would be followed by a similar set of activities after the public comment period on the DEIS. A final EIS, as well as a record of decision will be developed following the public scoping period. The DEIS will be issued in FY 1999 and the EIS will be issued in FY 2000. NEPA data needs will be integrated with data from core science, performance assessment, licensing and suitability.

Project Management:

Project Management includes the planning, budgeting, scheduling and funds management of all Program Element activities, facilities, site security, administrative support services, telecommunications and rents; records management and computer procurement, maintenance and operation wide area and local area networks; motor pool operations; and the conduct of a public information and outreach program. The major components of these activities are: management and integration functions for all approved work; Program Element control performance measurement system; technical Program Element management staff; and the cost and schedule baseline management.

External Oversight and Other:

This activity consists of financial and technical assistance to the State of Nevada, Affected Units of Government and Nevada state universities; National Academy of Science (NAS); PETT; and termination costs due to the downsizing of the Program Element.

II. **Funding Schedule**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change	FY 1998	FY 1999
Operations/Construction	$122,983	$ 84,719	$ 88,611	$+ 3,892	+ 05%	$ 88,268	$ 50,150
Core Science	102,309	53,667	71,076	+ 17,409	+ 32%	69,000	59,775
Design & Engineering	42,983	35,236	75,328	+ 40,092	+ 113%	74,732	62,421
Performance Assessment	22,737	12,144	19,263	+ 7,119	+ 59%	20,000	14,512
Licensing/Suitability	4,373	0	2,170	+ 2,170	+ 100%	4,000	4,545
NEPA	1,282	0	5,000	+ 5,000	+ 100%	6,000	4,400
Project Management	47,921	34,904	50,916	+ 16,012	+ 46%	42,000	32,197
External Oversight & Other	30,682	29,330	27,000	- 2,330	- 8%	26,000	22,000
Total Yucca Mtn Site	$375,270	$250,000	$339,364	$+ 89,364	+ 36%	$330,000	$250,000

NOTE:

1) Beginning in FY 1996, Environmental Data Collection activities were transferred to Core Science and Operations/Construction.

2) Partial funding for the Quality Assurance program is included in the Design and Engineering program activity. The supporting QA narrative is located in the Program Integration section.

III. **Performance Summary**

FY 1995 Accomplishments

Operations/Construction (FY 1995):

- In FY 1995, 2,002 meters of the ESF were excavated, of which 1,942 meters were excavated by the TBM. The ESF will give access to the geologic strata in which a repository will be placed. FY 1995 excavation was 720 meters more than planned at the beginning of FY 1995.

- Instruments were placed in 41 locations in the ESF to monitor the rock quality and any deformation induced by the excavation. The instruments showed very little displacement, validating our expectations that stable ground conditions and ground control is not a significant technical issue.

- Excavated test Alcoves #2 and #3 in the ESF to provide in situ locations for pneumatic and hydrologic testing of major geologic contacts and features.

- Completed five comprehensive environmental safety and health assessments and eight focused special issue assessments.

Core Science (FY 1995):

- Established a pneumatic monitoring network to collect baseline data on gas flow through Yucca Mountain and evaluate the impact of ESF construction on that gas flow. Preliminary results of pneumatic monitoring during TBM excavation into the Paintbrush nonwelded tuff were used to calibrate the Intermediate unsaturated zone (UZ) Hydrologic Framework Model.

- Completed line surveys in the ESF mapping through 1,800 meters. Data was collected on rock properties, fractures, and faults. The correlation between expected and "as built" geology was good. No unexpected features were encountered. The data was used as feed back to ESF designers, and to the flow and transport models of the unsaturated zone.

- Completed the phase I open-hole aquifer pump test at C-well complex. Phase I results provided draw-down, recharge curves for borehole C-3, and data on fracture flow and transmissivity. These results are important in describing fluid flow through the volcanic tuff as input to hydrologic flow models of the site.

- Completed pumping and testing at borehole WT-12. The tests provided data to determine hydraulic parameters for the site scale saturated zone model. This model will be used in ground water travel time calculations and serve as a basis for radionuclide transport models used in performance assessments.

- Completed drilling borehole SD-12 and nearly completed borehole SD-7. SD-7 and SD-12 are the only deep boreholes with Quality Assurance data in the central and southern repository area. Data on rock quality and rock properties will be provided to ESF and repository designers, and to the hydrologic models and tectonics studies.

- Collected 35 miles of high resolution gravity, magnetic, and seismic data in a grid over the Yucca Mountain area. Completed test lines over the proposed location of the ESF Ghost Dance fault alcoves. The data collected is fed into the Three dimensional (3-D) Geology Framework Model and contributes to the understanding of flow paths, and help characterize the steep hydraulic gradient at the north end of the Yucca Mountain.

- Completed data acquisition in UZ-16 using a 96 geophone string grouted in place. Collected data on compressional and shear velocity in 6 other boreholes. This data will be analyzed in FY 1996, to provide input to repository design, hydrologic flow, and transport models.

- Completed 23 miles of gravity, magnetic and seismic reflection profiles from Crater Flat to Jackass Flat. The data provided images of both shallow and deep structures, and was the first view of the subsurface area in the Crater Flat, west of Yucca Mountain. The three dimensional geometry is required for seismic hazard studies and evaluation of tectonic models.

- Completed a strategy for conducting thermal tests in the ESF. In situ heater tests will provide data essential to understanding the response of the host rock to heat generated by waste packages in a repository.

Design and Engineering (FY 1995):

- Completed the Multi-Purpose Canister (MPC) Systems Study. The study discussed the Yucca Mountain Site Characterization Program Element's strategy for accommodating the MPC into the design of the Mined Geologic Disposal System (MGDS), identified MGDS/MPC interface issues, developed a set of key decision points for resolution, and discussed requirements imposed on the MGDS by the MPC.

- Completed the Calico Hills Data Needs and Access Study that identified Calico Hills data needs and evaluated alternatives for accessing the Calico Hills geologic unit. This information will be used in deciding how best to assess potential Calico Hills performance as a barrier to radionuclide transport.

- Completed the FY 1995 Thermal Loading Study. The purpose of this study is to develop the technical basis for understanding the response of the rock to heat generated by waste packages in a repository, to support making a thermal loading decision for the repository.

- Completed engineering reports to optimize the proposed repository configuration. These included the Waste Package Emplacement Mode Evaluation Report, Repository Recommended Layout Concepts Report, As Low as Reasonably Achievable Analysis Update Report, Waste Handling Building Advanced Conceptual Design Report, and Preliminary Engineered Materials Characterization Report.

- Completed Nevada Repository Preliminary Transportation Strategy I and II Studies. The studies identified on the steps necessary to develop a system within Nevada to transport high-level radioactive waste entering the State for disposal at the potential repository site at Yucca Mountain, and provide information on existing conditions within the State that affect selection of a high-level waste transportation system. The information from the studies supports the design process and development of the DEIS for the proposed repository at Yucca Mountain.

Performance Assessment (FY 1995):

- Developed Total System Performance Assessment (TSPA) 1995 - an evaluation of the potential Yucca Mountain repository. TSPA quantifies the physical processes and interactions affecting the repository system. TSPA helps define the most significant processes, information gaps, uncertainties regarding these processes and additional information required in order to have a more robust assessment of the overall performance.

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- The focus of TSPA 1995 is on those components of the system that have been determined by previous analyses as most significant in the predicted containment and isolation of radioactive wastes from the biosphere. In particular, the focus is on the engineered components of the system and the near field environment in which these engineered components reside.

- Developed expected hydrologic cases for performance assessment. A key parameter in Yucca Mountain TSPA is the character and behavior of the ground water regime. The study established a set of reference hydrologic cases to be used in the execution of TSPA, and discussed the process of selection.

- Initiated development of an integrated radionuclide transport model from the near-field through credible pathways to the accessible environment. This model will be used to characterize physical, chemical, and hydrologic processes that enhance or retard the movement of radionuclides through the geosphere. The model will allow us to make quantitative predictions of radionuclide releases at the accessible environment for various release scenarios, and provide a basis for model abstractions by performance assessment.

Licensing/Suitability (FY 1995):

- Issue resolution activities were conducted between the DOE and the NRC to discuss methods to resolve technical issues identified by the DOE and NRC.

- Issued the first Technical Basis Report for Surface Characteristics, Preclosure Hydrology, and Erosion to the public and National Academy of Science (NAS); the NAS initiated their peer review of the Report.

- Provided the NRC with a new revision of the License Application Annotated Outline (LA AO) and Topical Reports I and II for Seismic Hazards Methodology. The benefits of early (pre-licensing) issue resolution using topical reports and the LA AO are reduced programmatic and regulatory risks. The DOE and NRC agreed to an annual revision and review cycle of the LA AO, provide an official update to the NRC on Program Element progress, identify continuing information needs for further development of the LA AO, and resolve identified technical and regulatory issues. The NRC reviewed the LA AO (Rev. 0) in FY 1995, and provided a preliminary evaluation report on the LA AO quality assurance chapter (Chapter 10). Based on these comments, a revised LA AO Chapter 10 will be developed in FY 1996 and submitted to the NRC as a complete resolved chapter.

- Completed and distributed the Office of Civilian Radioactive Waste Management (OCRWM) Process for Evaluating the Suitability of the Yucca Mountain Site for Development as a Repository for High-Level Waste and Spent Nuclear Fuel. The process identified a series of technical basis reports that summarize the current technical understanding of the site. The report was then provided to the NAS for review.

- Prepared and issued Semiannual Site Characterization Progress Reports 11 and 12, as required by the NWPA.

- Published and distributed the Phase II Licensing Support System (LSS) Functional Requirements Document, used as the basis for evaluating acquisition alternatives, subsequent LSS design and development.

NEPA (FY 1995):

- Published the EIS Notice of Intent (NOI) in the Federal Register announcing DOE's intent to initiate development of an EIS for a potential repository at Yucca Mountain and invite public comment.

- Held public scoping meetings in various cities to provide an opportunity for the public to comment on the scope of the EIS.

Project Management (FY 1995):

- Incorporated the Yucca Mountain Site Characterization Office (YMSCO) Five Year Plan into the OCRWM Program Plan for the revised program approach.

- Developed a detailed Program Element summary schedule for implementing the Program Approach for the suitability, licensing and NEPA products that further defined the scope, schedule, cost, and technical integration.

- Ensured Program Element activities were planned, funded, and scheduled to meet OCRWM program objectives; ensured Program Element activities were accomplished in accordance with approved workscopes, authorized budgets, and scheduled milestones; ensured Program Element participants were provided with facilities, equipment, systems, and support services needed to perform their approved activities; ensured Program Element participants were trained and qualified to perform their approved activities; ensured Program Element activities were performed in accordance with applicable statutes, regulations and DOE orders and directives; and ensured that open and informative interactions with the public and Program Element stakeholders were provided in accordance with the Nuclear Waste Policy Act as amended and the Secretary of Energy's customer service policy.

External Oversight and Other (FY 1995):

- Provided financial and technical assistance to the State of Nevada, Affected Units of Government and Nevada State universities; NAS; and PETT as consistent with the NWPAA. Provided termination costs due to downsizing the Program Element.

FY 1996 Planned Accomplishments

Operations/Construction (FY 1996):

- Continue excavation of the ESF with the TBM southward, through the repository horizon. From the ESF main drift, excavate a drift to explore the Ghost Dance fault and potential preferential pathway of water flow from the surface to the

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repository horizon. Excavate an alcove for conducting heater tests to determine thermal characteristics of the host rock. Excavate alcove #4 and initiate hydrologic testing in this alcove.

- Ensure the protection of employees, members of the public, the environment, and Program Element facilities and equipment from hazards that may result from site characterization and construction activities.

- Provide ESF underground safety support and on-site safety support to construction; provide environmental support for operating hazardous waste accumulation facilities, managing hydrocarbon contaminated soil maintenance and disposal; and conduct surveillance of site activities to ensure compliance with environmental regulations and requirements.

- Maintain medical emergency services and fire prevention programs to support field activities. Maintain and continue implementation of a safety and health program complying with applicable requirements. Continue implementation of the emergency management program.

Core Science (FY 1996):

- Complete initial testing in ESF Alcove 2: install equipment and initiate testing in Alcoves 3 and 4; continue unsaturated zone testing and monitoring in surface boreholes along the ESF main drift and north ramp; initiate Ghost Dance fault drift instrumentation and testing; begun the first ESF thermal test; and collect data in the saturated zone. This data will provide important inputs and constraints and site scale flow and transport models.

- Continue the probabilistic Seismic Hazard Analysis and the Probabilistic Volcanic Hazard Analysis.

- Perform data gathering and reporting of meteorological conditions to provide direct support to design, performance assessments, site suitability, environmental analyses and radiological dose assessments.

- Conduct ground-water monitoring and collect and compile data on ground-water levels and spring flows at approximately forty monitoring sites.

- Conduct scientific and engineering reviews of hazardous and solid waste handling and ESF facility designs to ensure compliance with environmental regulations and requirements.

- Perform preconstruction surveys to identify and characterize biological and cultural resources on lands proposed for surface-disturbing activities; perform interim and final reclamation activities as appropriate.

- Perform data gathering and reporting of ambient air monitoring data to the State of Nevada to meet the requirements of issued air quality operating permits so that uninterrupted surface disturbing activities may continue.

- Prepare data synthesis reports for radiological and terrestrial ecosystems field monitoring.

Design and Engineering (FY 1996):

- Complete the MGDS Advanced Conceptual Design (ACD). An MGDS ACD report will document the surface, subsurface, waste package, and rail spur conceptual designs. MGDS Viability Assessment design activities will be initiated. These activities will help substantiate the ACD design and its bases for the Viability Assessment. Materials and waste form testing will continue to refine the basis for models in support of TSPA.

- Continue developing the technical basis to support the thermal loading decision. The Thermal Loading Study will evaluate performance, cost, and schedule of the thermal management options. The study will also indicate how thermal loading flexibility can be achieved and when decisions must be made so that significant costs or schedule constraints are not incurred. The results of the study will be incorporated into the Program Element design technical baseline which directly supports the Viability Assessment design and engineering efforts.

- Conduct thermal management trade-off determination, design basis accidents/design basis events definition and evaluations, and backfill evaluation and determination.

- Complete a study to provide the technical basis for determination of a performance confirmation program. The Performance Confirmation Concepts Study will provide an overview of the performance confirmation approach in the form of a draft performance confirmation plan. The plan will include site characterization and pre-emplacement activities but will focus on post-emplacement monitoring. The results of the study will be incorporated into the Program Element design technical baseline which directly supports the investment analysis design and engineering efforts.

- Complete a study to provide the technical basis to support a recommendation regarding the use of backfill in the emplacement drifts. The Backfill Systems Study will provide a discussion of backfill design and cost considerations together with assessments of the impact of backfill on total system performance. Testing needs related to backfill effectiveness evaluations will be identified, as appropriate. The results of the study will be incorporated into the Program Element.

- Develop a design technical baseline which directly supports the Viability Assessment design and engineering efforts, and performance assessment.

- Continue to develop, establish, and maintain the Program Element cost and schedule and technical baseline; provide the MGDS input to the OCRWM program Total System Life Cycle Cost estimate; provide studies and analyses to resolve requirements, design, and/or testing issues; define, interpret and allocate engineering specialty requirements to produce a balanced design; and provide determination of importance evaluations and revisions as needed to support design and test package preparation.

Performance Assessment (FY 1996):

- The emphasis in FY 1996 will be on conducting sensitivity analyses of process-level models, model abstractions and total system and subsystem performance assessment analyses. These analyses will support the allocation of performance to the different barriers of the total system and will be used to identify the site and design-related information required to support a defensible performance assessment for the Viability Assessment.

- The Total System Performance Assessment-1995 and, where appropriate, Total System Performance Assessment-1993 analyses will be used as the basis for the new analyses.

- Various components of the waste package/engineered barrier system and near-field environment will be evaluated. These evaluations will consist of alternative properties and alternative conceptual model sensitivity studies.

- Components of the geosphere will be evaluated, including testing of the unsaturated zone transport model abstraction with the process model; site-scale alteration of the unsaturated zone flow caused by a range of thermal loads; alternative models for incorporating the effects of heterogeneity/spatial variability in the unsaturated zone; and alternative biospheres at alternative accessible environments.

- The credibility of system and subsystem level performance calculations rests on the credibility of the process level models that are the basis for this level of performance assessment modeling. The process level models may be used directly to provide boundary and input data, or they may be abstracted to become part of the higher level models. Recent performance assessment experience has shown that an additional level of detail is needed in the process level modeling. These models (e.g., site-scale unsaturated zone hydrology models, drift-scale thermohydrology models, waste package degradation models, waste package-scale thermochemical models (solubility), drift-scale transport models) will be provided by Yucca Mountain waste package and scientific programs groups to support the TSPA -- Viability Assessment and the overall Viability Assessment process.

- In the sensitivity analyses to be performed, interaction with appropriate site and design organizations will ensure that an appropriate range of alternative hypotheses is acknowledged, and if possible, tested. The sensitivity analysis will indicate which of the process models contribute most significantly to the overall performance and which should have priority in developing the Viability Assessment.

- Continue to conduct limited interactions regarding performance assessment with the NWTRB, Advisory Committee for Nuclear Waste, NRC, and the U.S. Environmental Protection Agency (EPA) regarding performance assessment. Although YMSCO considers interactions with each of these groups important, reduced funding requires YMSCO to focus on interactions most productive to Program Element progress.

- Continue interactions with the NRC on issue resolution and closure of site characterization analysis open items. Interactions will consist of informal meetings and formal technical exchanges, technical meetings, and management meetings. Support of NRC in-field verifications or vertical slice activities will be accommodated as funding allows.

Conduct issue resolution activities to gain NRC agreement and acceptance of DOE methods to resolve technical issues identified by the DOE and NRC, and reduce programmatic regulatory risk to the Program Element.

- A "Tiger Team" has been established to ensure that the Program Element's data acquisition investment efforts are protected from loss due to program downsizing. The team will identify data and records to be transferred to the Technical Data Base and the Records Processing Center. In addition, hardware, software, and test equipment, purchased with Program Element funds and resident at various participant locations, will be identified and transferred to the custody of the DOE.

- The development of a reasonable health and safety standard, called for by the Energy Policy Act of 1992, is imperative to the future of a licensable repository. YMSCO is planning interactions with the EPA to provide early guidance, review, and comment on the EPA's development of a proposed rule making for health and safety standards for Yucca Mountain, and to work with the NRC as they draft regulations to implement the EPA's standards.

- Continue development and production of the Semi-Annual Site Characterization Progress Report as required by the NWPAA.

- Erosion studies will be the basis for the development of a response package to resolve NRC comments on the Erosion Topical Report. A response package to NRC comments on the Seismic Hazards Methodology Topical Report I will also be developed to support issue resolution. Once NRC comments on the Seismic Hazards Methodology Topical Report II are received by the YMSCO, issue resolution activities will begin.

- Support database management tracking Program Element commitments to the NRC and open items with the NRC through completion or closure. Maintain a complete record of all commitments and open items and their dispositioning as necessary to support a future licensing process.

- Complete the expert elicitation process and develop the Probabilistic Volcanic Hazard Assessment Report (PVHA). The purpose of the PVHA expert judgement project is to assess the probability of a volcanic event (intrusive or extrusive) disrupting the potential repository at Yucca Mountain and to quantify the uncertainties associated with this assessment.

- Coordinate and develop the Viability Assessment Management Plan that defines the process and responsibilities for completing the deliverables required for an Viability Assessment and resulting in the development of the FY 1998 Viability Assessment Report. The Viability Assessment Management Plan will guide Program Element activities leading to an explanation of type of a repository viable at Yucca Mountain, its capacity, performance, design and costs.

- A comparison of the scope of FY 1996 site synthesis reports to Chapter 3 of the LA AO will be undertaken to identify outstanding information needs and determine necessary site characterization activities for sufficient completeness at licensing. Identification of remaining needs will ensure a significant section of the license application can be prepared in full.

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- The Waste Isolation and Containment Strategy (WICS) will be updated to include new data or information and new alternative interpretations since originally drafted. The WICS presents a strategy to evaluate Yucca Mountain for waste containment and isolation.

- Develop criteria and parameter validity tests for biosphere model selection.

Project Management (FY 1996):

- Ensure Program Element activities are planned, budgeted, and scheduled and funded to meet OCRWM program objectives; ensure Program Element activities are accomplished in accordance with approved workscopes, authorized budgets, and scheduled milestones; ensure Program Element participants are provided with facilities, equipment, systems, and support services needed to perform their approved activities; ensure Program Element participants are trained and qualified to perform their approved activities; ensure Program Element activities are performed in accordance with applicable statutes, regulations and DOE orders and directives; and ensure that open and informative interactions with the public and Program Element stakeholders are provided in accordance with the NWPAA and the Secretary of Energy's customer service policy.

External Oversight and Other (FY 1996):

- Provide financial and technical assistance to the State of Nevada, Affected Units of Government and Nevada State universities; NAS; and PETT as consistent with the NWPAA. Provide termination costs due to downsizing the Program Element.

FY 1997 Objectives

Consistent with the Program redirection, the main activities in FY 1997 will emphasize: core scientific activity, excavation of the Exploratory Tunnel, and completion of the repository and a waste package preliminary design for the Viability Assessment. In support of the Viability Assessment in FY 1998, our main objective for FY 1997 is to complete numerical models needed to support total system performance assessment. This suite of models will include process models describing flow of air and water, as well as transport of radionuclides in the unsaturated zone. Process models describing the flow of water and the transport of radionuclides in the saturated zone, at both the site and regional scales, will also be included. These models will provide the basis for calculations evaluating groundwater travel time and the potential for radionuclide migration through the geosphere to the accessible environment. Additional objectives are to produce synthesis reports which support the site description document and include conceptual models of geologic, hydrologic, geochemical, and geomechanical processes. The synthesis reports will summarize our knowledge gained from investigations identified in the Site Characterization Plan (SCP).

FY 1997 Planned Accomplishments

Operations/Construction (FY 1997):

- Complete the underground five mile ESF loop, second Ghost Dance fault alcove and, initiate hydrologic testing in this alcove. The completed loop will allow testing and evaluation of the geology and hydrology of the southern portion of the proposed repository.
- Initiate excavation of additional exploratory drifts..
- Construct a limited amount of facilities at the north and south portals to support the ESF construction and operations.
- Complete boreholes to provide data for the design of additional exploratory drifts and to improve our understanding of the distribution of rock units and faults in this area.
- Ensure the protection of Program Element employees, members of the public, the environment, and Program Element facilities and equipment from hazards that may result from site characterization and construction activities.
- Provide ESF underground safety support and on-site safety support to construction; provide environmental support for operating hazardous waste accumulation facilities, managing hydrocarbon contaminated soil maintenance and disposal, and conducting surveillance of site activities to ensure compliance with environmental regulations and requirements.
- Maintain medical emergency services and fire prevention programs to support field activities; maintain and continue implementation of safety and health program complying with applicable requirements. Continue implementation of the emergency management program.

Core Science (FY 1997):

- Continue testing in ESF Alcoves 2, 3, and 4; continue unsaturated zone testing and monitoring in surface boreholes along the ESF main drift, north ramp, and south ramp; continue Ghost Dance fault drift testing; and collect data in the saturated zone. This data will provide important inputs and constraints to site scale flow and transport models.
- Prepare numerical models to support total system performance assessment and refine our understanding of site geology and hydrology. Produce synthesis reports which support the Site Description Document that include conceptual models of geologic, hydrologic, geochemical, and geomechanical processes. The synthesis reports will summarize our knowledge gained from investigations identified and carried out under the Site Characterization Plan.
- Additional data collection activities will focus on gaining a better understanding of the repository's waste containment and isolation capabilities to support the Viability Assessment regarding infiltration potential, behavior of engineered barriers (e.g. waste package, backfill) and transport of radionuclides to the environment.

- Surface geophysic surveys will be conducted along E-W traverses across the repository block and along the south ramp of the ESF and north expansion areas to confirm the presence or absence of geologic structures not observed at the surface.
- Analyze additional water samples for isotopic tracers. Tracers will be used to assess the time required for groundwater to travel from the surface to its present location. This data will be used to constrain and evaluate flow models for the site.
- Drill boreholes to provide information on rock properties, deep stratigraphy and saturated zone to support three dimensional geologic, hydrologic, tectonic, and volcanism modeling efforts.
- Drill boreholes to sample and confirm the presence of potential buried basalt suggested by geophysics. Ages of buried basalt, if found, are required for volcanic hazard probability studies.
- Saturated hydrologic zone testing will be conducted to investigate water movement across faults; to complete tracer tests at the C-wells; and to study the deep aquifers downstream from the repository block.
- Collect otherwise irretrievable data, such as seismic, stream flow, pneumatic, and meteorological to record transient events such as earthquakes, floods, and major storms.
- Complete drill-hole WT-24 and conduct additional aquifer tests to characterize the steep hydraulic gradient and as input into the regional saturated zone hydrologic model.
- Continue geologic mapping along the main north-south drift, south ramp, and alcoves.
- Initiate hydrologic testing in the first Ghost Dance fault alcove to observe potential groundwater flow paths through the repository horizon. This will provide data crucial to the issue of fast flow paths through the unsaturated zone.
- Continue hydrologic testing in alcove #2 (Bow Ridge Fault), alcove #3 (upper contact PTn) and alcove #4 (lower contact PTn) to study water movement above the repository horizon. Initial data indicate that the PTn acts to buffer transient events, such as high fluid flux resulting from large storms. These tests will evaluate the magnitude and importance of this effect.
- Perform exploratory underground investigations in the proposed repository environment, including geologic mapping, and studies of water movement across faults.
- For thermal testing, continue testing the single element heater test. The drift scale heater test will be installed and heaters turned on during FY 1997. The drift scale heater test will be designed to approximate an actual emplacement drift. Thermal, hydrologic and geomechanical parameters will be monitored during the tests and data will be used to evaluate potential impacts on the near field environment.
- There will be ongoing design verification and construction monitoring to assess stability of ESF openings.

- Initiate testing in the ESF south ramp alcoves for hydrologic testing in the southern portion of the repository.

- Evaluate appropriate natural analogue sites, with a focus on specific processes related to radionuclide oxidation and transport.

- Improve environmental baseline data collection effort to support our understanding of the crosscutting disruptive processes such as climate change and other millennium events that might impact the Program's waste isolation and containment strategy.

- Perform data gathering and reporting of meteorological conditions to provide direct support to design, performance assessments, environmental analyses and radiological dose assessments. Meteorology inputs are also necessary to support the requirements of preclosure radiological safety, regional airflow patterns relative to population centers, and extreme weather conditions relevant to surface facility design.

- Conduct ground-water monitoring and collect and compile data on ground-water levels and spring flows at approximately forty monitoring sites.

- Conduct scientific and engineering reviews of hazardous and solid waste handling and ESF facility designs to ensure compliance with environmental regulations and requirements.

- Perform preconstruction surveys to identify and characterize biological and cultural resources on lands proposed for surface-disturbing activities; perform interim and final reclamation activities as appropriate.

- Perform data gathering and reporting of ambient air monitoring data to the State of Nevada to meet the requirements of issued air quality operating permits so that uninterrupted surface disturbing activities may continue.

- Complete data synthesis reports for radiological and terrestrial ecosystems field monitoring.

Design and Engineering (FY 1997):

- Produce a more comprehensive design to increase assurance of a cost-effective approach for disposing of the nation's radioactive waste while meeting an acceptable risk standard. This entails completing the preliminary design for the waste package, surface and subsurface designs of the repository, and the rail spur. Waste package enhancements will include work in fabrication development, criticality probabilistic analyses, materials, and waste form testing. Repository design enhancement will include investigation of the Nevada transportation, thermal layouts, shielding requirements, retrievability, backfill needs, ventilation, and equipment concepts.

- Complete the Thermal Loading System Study. The study will provide the technical basis to support the thermal loading decision. The study will evaluate performance, cost and schedule of the thermal management options. The study will also indicate how thermal loading flexibility can be achieved and when decisions must be made so that significant costs or

schedule constraints are not incurred. The results of the study will be incorporated into the Program Element design technical baseline which directly supports the investment analysis, design and engineering efforts.

- Continue to develop, establish, and maintain the Program Element cost and schedule and technical baseline; provide the MGDS input to the OCRWM program Total System Life Cycle Cost estimate; provide studies and analyses to resolve requirements, design, and/or testing issues; define, interpret and allocate engineering specialty requirements to produce a balanced design; and provide determination of importance evaluations and revisions as needed to support design and test package preparation.

Performance Assessment (FY 1997):

- The results of Total System Performance Assessment, including its technical peer review, will serve as the principal vehicle for integrating the products of the scientific, design, and engineering program elements, and as such constitutes a key component of the FY 1998 Viability Assessment. This total System Performance Assessment will begin in FY 1997. Technical peer review will assess supporting process models, abstracted performance assessment models, the TSPA itself, and the methods by which these components are integrated.

- The first TSPA activity module, Total System Performance Assessment Orientation will culminate in FY 1997, and activities associated with the second module, Process Model Review, will be initiated. During the Process Model Review activity DOE will demonstrate the relationships between the deterministic understanding of site processes and features, and the numerical process models that describe these processes and features. The approach will be adjusted, as necessary, reflecting review progress and the status of site and engineering input.

- The increased complexity of the process-models resulting from additional data collection activities supporting the FY 1998 Viability Assessment is to be integrated into performance assessment subsystem models. These data will be gathered to gain a better understanding of the repository's waste containment and isolation capabilities, and will be focused in areas of particular sensitivity as identified in TSPA 1993 and TSPA 1995. Primary among these sensitivities are infiltration potential, behavior of engineered barriers, and radionuclide transport to the accessible environment.

- Pertinent structural geologic, stratigraphic, and hydrogeologic data gained from the completed five-mile tunnel and additional data from surface boreholes incorporated into the detailed process-level models will, in turn, be incorporated into performance assessment subsystem models. Subsystem models will be further enhanced by incorporating process-level information gained from accelerated repository/waste package design and materials testing activities.

- Continue to conduct interactions with the NWTRB, Advisory Committee for Nuclear Waste, NRC, and the EPA. The interactions will be those determined to be most productive to the Project's progress.

- Develop a Performance Confirmation Plan to identify the short and long term tests and analyses needed to verify performance predictions.

- Continue development and production of the semi-annual Site Characterization Progress Report to the NRC and State of Nevada, as required by the NWPA.
- Continue maintenance of tracking databases tracking commitments to and open items from the NRC.
- Continue conducting regulatory reviews and issue resolution activities.
- Develop criteria and parameter validity tests for biosphere model selection and uncertainty analysis.

Licensing (FY 1997):

- Perform all activities necessary to screen, image, index and quality check images of records in preparation for Licensing Support Systems (LSS) submission. Tasks include elimination of the records backlog, reprocessing of the existing microfilm based records, and processing of incoming records packages.
- Initiate LSS acquisition activities.
- Design specification documents; conduct design reviews; and develop an Acceptance Test and System Turnover Plans; and proposal evaluation and award.

NEPA (FY 1997):

- The contract for a repository EIS technical support contractor will be awarded.
- Activities will include review scoping comments, categorize by issues/concerns, and prepare responses; draft description of proposed action and alternatives; and, analyze existing design performance assessment, and affected environment data for NEPA adequacy; gather additional data as necessary to support environmental analysis.

Project Management (FY 1997):

- Ensure Program Element activities are planned, funded, and scheduled to meet OCRWM program objectives; ensure Program Element activities are accomplished in accordance with approved workscopes, authorized budgets, and scheduled milestones; ensure Program Element participants are provided with facilities, equipment, systems, and support services needed to perform their approved activities; ensure Program Element participants are trained and qualified to perform their approved activities; ensure Program Element activities are performed in accordance with applicable statutes, regulations and DOE orders and directives; and ensure that open and informative interactions with the public and Program Element stakeholders are provided in accordance with the NWPAA and the Secretary of Energy's customer service policy. Ten million dollars is included for scoring a new lease due to the lease expiration of the current facility.

External Oversight and Other (FY 1997):

- Provide financial and technical assistance to the State of Nevada, Affected Units of Government and Nevada State universities; NAS; and PETT as consistent with the NWPAA. Provide termination costs due to downsizing the Program Element.

FY 1998 Objectives

Major work for FY 1998 is to complete the Viability Assessment, perform EIS and license application activities, and start preliminary license application design for repository and waste package.

FY 1998 Planned Accomplishments

Operations/Construction (FY 1998):

- Complete excavation of additional exploratory drifts.
- Provide for phased turnover of constructed ESF facilities to operations. Operations to include maintenance of facilities and utilities in support of continued testing and license applications.
- Demobilize the tunnel boring machine.
- Provide continued test support as required for test setup, additional alcove construction, and utilities.
- Ensure protection of Program Element employees, members of the public, the environment, and Program Element facilities and equipment from hazards that may result from site characterization and construction activities.
- Provide ESF underground safety support and on-site safety support to construction; provide environmental support for operating hazardous waste accumulation facilities; manage hydrocarbon contaminated soil maintenance and disposal; and conduct surveillance of site activities to ensure compliance with environmental regulations and requirements.
- Maintain medical emergency services and fire prevention programs to support field activities; maintain and continue implementation of safety and health program complying with applicable requirements. Continue implementation of the emergency management program.

Core Science (FY 1998):

- Complete the Site Description. A discussion will be provided of all data collected related to geology and hydrology. Complete full documentation of data sources and description of conceptual models of geologic and hydrologic processes operating at the site. Complete record packages will also be submitted.

- Performance confirmation data collection and testing will begin. These data will be used to fill information gaps or resolve uncertainties identified during the completion of the Site Description. The data will be used to update numerical and process models that will serve as the basis for the TSPA. These data collection activities will include:
  - complete single element heat up phase and begin cool down;
  - continue long duration drift scale heater and hydrologic tests;
  - hydrologic testing in the south ramp of the ESF;
  - complete SZ cross-hole testing in aquifer down gradient from Yucca Mountain; and
  - continue monitoring transient events such as earthquakes and large precipitation events.

- Perform data gathering and reporting of ambient air monitoring data to the State of Nevada to meet the requirements of issued air quality operating permits so that uninterrupted surface disturbing activities may continue.

- Perform data gathering and reporting of meteorological conditions to provide direct support to design, performance assessments, environmental analyses, and radiological dose assessments. Meteorology inputs are also necessary to support the requirements of preclosure radiological safety, regional meteorological data synthesis, regional meteorological conditions, regional airflow patterns relative to population centers, and extreme weather conditions relevant to surface facility design.

- Conduct ground-water monitoring and collect and compile data on ground-water levels and spring flows at approximately forty monitoring sites.

- Conduct scientific and engineering reviews of hazardous and solid waste handling and ESF facility designs to ensure compliance with environmental regulations and requirements.

- Perform preconstruction surveys to identify and characterize biological and cultural resources on lands proposed for surface-disturbing activities; perform interim and final reclamation activities as appropriate.

Design and Engineering (FY 1998):

- Start the license application design for the waste package, the surface and subsurface of the repository, to support the TSPA sensitivity and Total System Life Cycle Costs (TSLCC) products. The Waste Form Characteristics Report and Engineered Materials Characteristics Report will be updated to support the TSPA sensitivity analyses. Repository design will include surface and subsurface facilities descriptions and operations concepts to assess the viability of constructing and operating a repository at Yucca Mountain.

- Complete the design of a Waste Package Prototype to be used to verify that the design complies with regulations.

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Performance Assessment (FY 1998):

- The third TSPA-VA activity module, Abstract Model Review, will be conducted. During the Abstract Model Review activity, DOE will demonstrate the comparability between the results of the detailed process models and the abstracted models. Revisions to the approach identified in the Process Model Review will be documented, and technical assumptions and methods will be updated.

- Two key activities, the TSPA-VA Testing Process Level Model Abstraction - Phase 1 (Phase 1) and TSPA-VA Testing Process Level Model Abstraction - Phase 2 (Phase 2) supporting preparation of TSPA-VA will be performed.

  - Phase 1 will draw on process-level models developed in the site-characterization program and will abstract these models into a form used for the probabilistic TSPA analyses. In conjunction with these activities a representative biosphere will be developed and a dose model will be constructed for use in TSPA-VA.

  - Phase 2 will use abstracted models drawn from process-level models developed in the Analyses will be performed in accordance with applicable regulations. Results of the TSPA will feed Engineered Barrier System and Waste Package design.

- Design efforts and other design/engineering activities will provide guidance and recommendations to Scientific Programs. TSPA-type analyses will then be performed for the DEIS, ESF and design studies.

- The first in a series of activities supporting software qualification for TSPA, Saturated Zone Flow Software Qualification, will be initiated. Several codes are currently being used to model specific site processes and conditions, but a single code for each relevant process will be qualified for use in licensing. Selection of the appropriate code for qualification depends upon detailed comparison of the boundary conditions provided for the site scale saturated flow modeling. Verification of the code will include definition of a benchmarking problem, verification and comparisons of the numerical models.

- Provide uncertainty analysis and data input into biosphere model.

- The Viability Assessment will report the results of: site characterization studies; advanced designs for repository operation and waste package transport and emplacement; the ability of repository/waste package, acting as a total system, to isolate and contain radioactive waste; and estimate of the cost to construct and operate the repository.

Licensing (FY 1998):

- Initiate the acquisition of a Licensing Support System.

- Develop the Disposal Criticality Topical Report. This report will be based on the topical report annotated outline submitted to the NRC in FY 1995 and the comments received from the NRC on that outline.

- The evaluation of the LA AO Rev 0 against the key technical uncertainties and information needs started in FY 1997 will be completed. This evaluation will be used to focus development of the first preliminary LA chapters, or those areas where the most data exists.

- Complete the License Application Plan for the Viability Assessment, . This plan will identify the scope, schedule and cost of additional work required to produce a repository construction license application.

- Continue interactions with the NRC, NWTRB and other oversight groups.

- Continue LSS Acquisition activities including finalization of design and test documents; conduct of design reviews; issuance of procurement documents; LSS hardware/software maintenance; and procurement administration activities. Continue records processing activities.

NEPA (FY 1998):

- Prepare environmental impacts and consequence analysis for each technical discipline in the EIS. The preliminary impact analyses will consider results of a total system performance assessment of the repository. Preliminary drafts of the EIS on Impact Analyses and Environmental Consequences will then be developed and mitigation measures will be identified.

Project Management (FY 1998):

- Ensure Program Element activities are planned, funded, and scheduled to meet OCRWM program objectives; ensure Program Element activities are accomplished in accordance with approved workscopes, authorized budgets, and scheduled milestones; ensure Program Element participants are provided with facilities, equipment, systems, and support services needed to perform their approved activities; ensure Program Element participants are trained and qualified to perform their approved activities; ensure Program Element activities are performed in accordance with applicable statutes, regulations and DOE orders and directives; and ensure that open and informative interactions with the public and Program Element stakeholders are provided in accordance with the NWPAA and the Secretary of Energy's stakeholder policy.

External Oversight and Other (FY 1998):

Provide financial and technical assistance to the State of Nevada, Affected Units of Government and Nevada State universities; NAS; and PETT as consistent with the NWPAA. Provide termination costs due to downsizing the Program Element.

FY 1999 Objectives

Continue with licensing and EIS activities and complete preliminary license application design. Continue ESF operations for testing and complete and issue the DEIS and conduct public hearings.

FY 1999 Planned Accomplishments:

Operations/Construction (FY 1999):

- Provide continued test support as required for test setup, additional alcove construction and utilities.
- Continue phased turnover of constructed ESF facilities to operations. Operations include maintenance of facilities and utilities in support of continued testing and license application.
- Ensure protection of Program Element employees, members of the public, the environment, and Program Element facilities and equipment from hazards that may result from site characterization and construction activities.
- Provide ESF underground safety support and on-site safety support to construction; provide environmental support for operating hazardous waste accumulation facilities, managing hydrocarbon contaminated soil maintenance and disposal; and conduct surveillance of site activities to ensure compliance with environmental regulations and requirements.
- Maintain medical emergency services and fire prevention programs to support field activities; maintain and continue implementation of safety and health program complying with applicable requirements. Continue implementation of the emergency management program.

Core Science (FY 1999):

- Continue performance confirmation data collection and testing. These data collection activities will include:
  - complete single element heater test cooldown,
  - complete drift scale heater test heat up and begin cool down,
  - continue long term monitoring in the ESF and monitoring of transient events,
  - boreholes will be drilled to fill in areas of sparse information for numerical model updates for LA, and
  - continue to update numerical and process models of the site.
- Perform data gathering and reporting of ambient air monitoring data to the State of Nevada to meet the requirements of issued air quality operating permits so that uninterrupted surface disturbing activities may continue.
- Perform data gathering and reporting of meteorological conditions to provide direct support to design, performance assessments, site suitability, and radiological dose assessments. Meteorology inputs are also necessary to support the requirements of preclosure radiological safety, regional meteorological data synthesis, regional meteorological conditions, regional airflow patterns relative to population centers, and extreme weather conditions relevant to surface facility design.
- Conduct ground-water monitoring and collect and compile data on ground-water levels and spring flows at approximately forty monitoring sites.

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- Conduct scientific and engineering reviews of hazardous and solid waste handling and ESF facility designs to ensure compliance with environmental regulations and requirements.

- Perform preconstruction surveys to identify and characterize biological and cultural resources on lands proposed for surface-disturbing activities; perform interim and final reclamation activities as appropriate.

Design and Engineering (FY 1999):

- Continue the license application design with alternatives for the waste package, the surface and subsurface repository facilities, and the rail spur. Waste package activities will include design and long term waste form and materials testing for the models refinement and validation process. Repository activities will include the development of facilities design with alternatives and operations concepts to support the license application and NEPA processes.

- Complete the procurement and fabrication of the Waste Package Prototype.

Performance Assessment (FY 1999):

- The TSPA VA Review will be conducted. During the TSPA VA Review DOE will present the TSPA VA report to the Peer Review Panel and will describe the results. The Panel will catalog their impressions and make final formal information requests in a final letter report. The Panel will deliver to the DOE a report documenting the conduct and results of the peer review, including formal recommendations for changes in approach, methods, and scope for any future TSPA.

- The series of activities supporting software qualification for TSPA will be continued:
  - Unsaturated Zone Transport Software Qualification,
  - TSPA Software Qualification, and
  - EBS PA Software Qualification.

- Provide sensitivity analysis/quantification of final biosphere modeling inputs.

Licensing (FY 1999):

- Complete the Disposal Criticality Topical Report and issue it to the NRC for review and feedback.

- Prepare preliminary LA chapters for natural systems and Performance Assessment. Interact with the NRC staff to resolve issues.

- Prepare 10 CFR 960 compliance report.

- Prepare the Groundwater Travel Time PA description.

- Prepare portions of the draft license application.

- Complete the acquisition of the Licensing Support System. Initiate its installation and prepare for its acceptance testing by the NRC.

NEPA (FY 1999):

- Prepare preliminary DEIS for internal DOE review, incorporate changes, and prepare and publish the DEIS for public comment. The six month public comment period will be started. Public hearings on the DEIS will be held during the public comment period. Comment collection, categorization, and analysis will be initiated.

Project Management (FY 1999):

- Ensure Program Element activities are planned, funded, and scheduled to meet OCRWM program objectives; ensure Program Element activities are accomplished in accordance with approved workscopes, authorized budgets, and scheduled milestones; ensure Program Element participants are provided with facilities, equipment, systems, and support services needed to perform their approved activities; ensure Program Element participants are trained and qualified to perform their approved activities; ensure Program Element activities are performed in accordance with applicable statutes, regulations and DOE orders and directives; and ensure that open and informative interactions with the public and Program Element stakeholders are provided in accordance with the NWPAA and the Secretary of Energy's customer service policy.

External Oversight and Other (FY 1999):

Provide financial and technical assistance to the State of Nevada, Affected Units of Government and Nevada State universities; NAS; and PETT as consistent with the NWPAA. Provide termination costs due to downsizing the Program Element.

IV. Explanation of Funding Changes FY 1996 to FY 1997

The significant contributors to the FY 1997 budget increases are Operations/Construction ($84,719K-$86,611K) to allow for additional transverse drifting to improve Viability Assessment; Core Science ($53,667K - $71,076K) to perform saturated hydrologic zone testing, an increase in the number of alcoves requiring hydrologic and thermal testing, and testing requirements for the ESF south ramp. In addition, new surface based drilling and volcanic drilling programs will be initiated, and surface geophysics studies will be performed. Design and Engineering ($35,236K - $75,328K) increase is to produce an enhanced design for the waste package and repository, and to complete the Thermal Loading System Study. The design enhancements will increase assurance of a more cost-effective approach for nuclear waste disposal. The primary driver for the increase in Performance Assesment ($12,144 - $19,263K) is the preparation of the TSPA to support the Viability Assessment, and the addition of enhanced confirmatory modeling capability to increase the reliance of the

performance assessments and the predictive behavior of the proposed repository. Project management increased ($34,904K - $50,916K) to provide a comparable level of support for the increases in other areas of the program elements and to provide $10,000K for a scoring new lease due to the lease expiration of the current facility. Oversight, PETT, and closeouts decreased ($29,330K - $27,000K) due to reduced funding provided to the State of Nevada, affected units of local government, NAS and closeouts.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

NUCLEAR WASTE ACTIVITIES
(Tabular dollars in thousands. Narrative material in whole dollars)

Yucca Mountain Site Characterization Project

IV. A. Operating Expense Funded Subproject Summary

Subproject No.	Subproject Title	Previous Obligations	FY 1996 Appropriated	FY 1997	Unappropriated Balance	TEC
83-W-100	Exploratory Studies Facility	$ 321,189	$ 65,960	$ 77,848	$ 210,276	$ 445,680

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IV. B. Operating Expense Funded Subproject Descriptive Summary

1. Project Title and Location: Subproject 83-W-100, Exploratory Studies Facility (ESF), Yucca Mountain, Nye County, Nevada — TEC: $445,680[b] TPC: $675,273

Physical Construction Start Date: 1st Qtr FY 1993 Completion Date: 2nd Qtr. FY 2000[a]

2. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
Previous.....	$ 322,563	+ 1,141 c/	$ 321,183	$321,189
1996.....	65,960	- 1,147 d/		

a/ TPC is the current cost baseline approved by the Energy System Acquisition Advisory Board (ESAAB) in January, 1992, for the total Yucca Mountain Site Characterization Project work scope, which consists primarily of non-construction work for scientific investigations and License Application development.

b/ TEC has decreased $53,237,000 as a result of reduced construction relative to the Program Approach, due to reduced appropriations.

c/ Reflects use of prior-year balances during FY 1992 to support the completion of that portion of Title II design required for the start of site preparation in the first quarter of FY 1993, for the first access ramp portal.

d/ Budget authority transferred to other YMP program elements to fund ESF regulatory, repository/ESF interfaces and system studies, occupation and mined safety and health training.

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3. **Narrative:** The FY 1996 Congressional Budget submission identified a total estimated cost (TEC) of $498,918,000 in year-of-expenditure dollars for this subproject. Technical changes from the FY 1996 Congressional budget submission are due to four factors: 1) efficiencies brought about by having over 1 year's actual TBM operating experience; 2) increased integration of scientific investigators' needs to access the excavated areas and TBM excavation schedule, resulting in reduced TBM "down time"; 3) shifting away from single purpose alcoves and construction equipment and refuge niches; and 4) streamlining necessitated by significant reductions in FY 1996 appropriations and reduced outyear targets in this FY 1997 budget submittal.

The primary objective of this subproject is to collect and analyze data to be used in determining the suitability of the Yucca Mountain candidate site for the construction of a potential high-level nuclear waste repository. Construction, as defined in the Exploratory Studies Facility Design Requirements Document, will: (1) provide access to selected underground tuff horizons and surrounding strata in an unsaturated zone and perform in-situ testing in the selected horizons at the Yucca Mountain candidate site, and (2) provide the ability to safely and effectively acquire the necessary data for design of a potential repository, performance assessment, and license application.

The Exploratory Studies (ES) program will contribute to scientific investigation through extensive in-situ testing. This testing will assess geologic characteristics and characteristic variables; analyze the hydrologic properties to aid in evaluation of the isolation capability of the candidate tuff horizon; and determine whether the stability of openings can be maintained throughout the operational life of the potential repository without adversely affecting isolation capability or retrievability. At the conclusion of the ES program, and through the use of data obtained in other Yucca Mountain site investigation activities, data will be available to assess the suitability of the tuff at the site for use as a nuclear waste repository.

The budget authority level requested for FY 1997 will provide support to: complete excavation of the ESF 5 mile loop; complete excavation of the Heater Test Alcove and begin testing; excavate a second alcove off, the main drift, to access the Ghost Dance fault; complete design sufficient to initiate procurement of a subcontractor for further excavation; construct a limited number of additional surface facilities at the north and south portals; continue IDS procurement and installation. Continuing support activities include: test planning, coordination and provisions of construction support for testing; Title III engineering support for construction; project engineering and construction management; and transition of the ESF from the construction phase to the operations phase.

WASTE ACCEPTANCE, STORAGE AND TRANSPORTATION

I. **Mission Supporting Goals and Objectives**

The Waste Acceptance, Storage and Transportation (WAST) Program Element will address the long-lead time activities that must precede any near term removal of spent nuclear fuel (SNF) from reactor sites once a federal facility becomes available. This includes an evaluation of alternatives for creating a private-sector, market-driven, national transportation capability to remov[illegible], including canisters, transport casks and storage module production, and waste acceptance and transportation services. Such an approach would be a catalyst for commercial development of equipment required for the transportation and storage of SNF.

The FY 1996 Energy and Water Development Appropriation Act reserved $85 million in the Defense Nuclear Waste Disposal Appropriation which shall be available for obligation and expenditure only for an interim storage facility and only upon the enactment of specific statutory authority. At the appropriate time, the Administration will request the release of the $85 million for generic interim storage activities.

Spent Fuel Storage

This activity continues technology demonstration projects that have the potential to benefit one or more areas of the Program Element, including the Spent Fuel Management at West Valley Demonstration Project and the Spent Fuel Behavior in Long-Term Storage Project. Management responsibilities for the Spent Fuel Management at West Valley Demonstration Project and the Spent Fuel Behavior in Long-Term Storage Project will be transferred from the Office of Civilian Radioactive Waste Management to the Office of Environmental Management starting in FY 1997. This activity also includes contingency plans for interim storage.

Transportation

This activity will include contingency plans for a safe, environmentally acceptable, and cost-effective transportation capability. Activities provide planning for the necessary transportation equipment and services utilizing the private sector to the fullest extent possible. Contract(s) would be awarded for these services at an appropriate time. This activity also includes the planning, identification and resolution of institutional issues and interactions with stakeholders, the payment of

emergency assistance funds (Section 180(c)) at an appropriate time; and the development of analytical processes and transportation databases to support overall program requirements.

Waste Acceptance

Waste Acceptance activities focus on plans for achieving the legal physical transfer of waste to the Federal Government from the owners and generators of SNF and HLW, once a Federal facility is ready to begin operations; support the transportation, storage and disposal of waste, once accepted; and develop recommendations for the Department's Waste Acceptance policy. Activities required to facilitate Waste Acceptance include: 1) development of a process for the orderly transfer of SNF and HLW into the Federal system consistent with the needs of both the Federal Government and the owners and generators; 2) development of a plan to carry out the program's Waste Acceptance responsibilities; and 3) continuation of a collaborative dialogue with the Nation's nuclear utility companies as well as other owners and interested stakeholders.

MPC Subsystem

For FY 1995 and FY 1996, this activity continued the development of the Multi-Purpose Canister (MPC) Subsystem, including the design and preparation of a Safety Analysis Report (SAR). This activity is planned to conclude in FY 1996.

Project Management and Integration

Project Management and Integration (PM&I) consists of activities and tasks that support all of the product areas. Specifically, the PM&I area includes the traditional areas of project management, project control, and technical and programmatic integration of tasks and activities across the Project. These integration tasks include Project Integration, Systems Engineering, Environmental Safety and Health, and Quality Compliance.

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II. **Funding Schedule:**

Program Activity	FY 1995	FY 1996	FY 1997	$Change	%Change
Spent Fuel Storage	$ 3,130	$ 1,000	$ 2,300	$+ 1,300	+130%
Transportation	14,081	5,100	2,525	- 2,575	- 50%
Waste Acceptance	6,258	2,300	2,725	+ 425	+ 18%
MPC Subsystem	28,745	1,800	0	- 1,800	- 100%
Project Integration	4,515	3,400	2,450	- 950	- 28%
Total WAST	$ 56,729	$13,600	$10,000	$ - 3,600	- 26%

III. **Performance Summary:**

FY 1995 Accomplishments:

Spent Fuel Storage (FY 1995):

- For the Nuclear Fuel Services (NFS) Fuel Project, continued monitoring SNF in-pool storage at West Valley. Recertified a second Transnuclear cask to ship the fuel to Idaho National Engineering Laboratories.
- For the Dry Rod Consolidation Technology Disposition Project, procured storage and transport containers. Began cutting/packaging of spent fuel skeletons for shipment to Radioactive Waste Management Complex at Idaho National Engineering Laboratory.
- For Spent Fuel Behavior in Long-Term Storage Project, prepared engineering evaluation of the gas samples, fuel inspection readiness review, completed quarterly gas samples and annual project report. This program monitors the oldest SNF in dry storage in the U.S.
- Completed an Interim Storage Facility Design Study.
- Supported DOE/industry development of a dry spent nuclear fuel transfer system.

Transportation (FY 1995):

- Received first set of comments from the NRC on the GA-4/9 Safety Analysis Reports (submitted in FY 1994). Developed responses to comments.
- Fabricated half-scale model of GA-4 cask for use in regulatory testing. Regulatory tests were performed as part of the NRC Certification process for advanced technology high-capacity truck casks, and procurement planning for prototype casks was initiated.

- Completed the testing of the GA-9 legal-weight trailer and continued the testing of the legal-weight truck tractor.

- Completed Actinide-Only Pressurized Water Reactor Burnup Credit Topical Report and submitted it to the NRC. Completed specific studies and analyses to support the topical report. Acceptance of burnup credit could allow more fuel to be loaded into a cask or waste package, or reduce the need for neutron absorber material in the fuel basket.

- Completed a variety of studies, reports, and analyses that have supported the preparation of the MPC EIS, a risk management strategy, and nuclear utilities reactor site operations handbooks for SNF handling.

- Completed a position report as part of development of policy for implementing Section 180(c) of the Nuclear Waste Policy Act (NWPA).

- Completed OCRWM Transportation Report, describing the transportation program and institutional issue resolution.

- Stakeholder interactions were continued through public meetings, the exhibits program, and Cooperative Agreements such as those with the National Association of Regulatory Utility Commissioners, the National Congress of American Indians and the National Conference of State Legislatures.

Waste Acceptance (FY 1995):

- Prepared a summary report on the responses to the Notice of Inquiry (NOI) on DOE's obligation to accept waste in 1998. Identified issues resulting from the NOI, the MPC program, and the existing Annual Capacity Report that may require Standard Disposal Contract modifications.

- Completed current, quarterly fee verification and revenue projections. Began development of a Memorandum of Agreement for use between DOE and the waste owners that will address fees and terms of acceptance for Federally-owned SNF, defense and commercial HLW.

- Developed Waste Acceptance Criteria (WAC) Management Plan to establish a process for acceptance of alternate waste forms i.e., HLW, DOE SNF, and miscellaneous waste. Evaluated alternative waste forms being considered for repository disposal to determine applicability of established WAC. Supported the DOE SNF Steering Group and the Environmental Management Technical Review Group.

- Developed Waste Acceptance Operations Plan. Began development of Waste Acceptance Design Requirements Document. Reviewed and revised system level program and project documents impacting Waste Acceptance.

- Prepared Integrated Safeguards and Security Regulatory Model and Analysis, including IAEA approach to safeguards. Prepared Verification Plan and Safeguards and Security Plan.

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- Disseminated validated SNF data to Program users in the form of 1995 spent fuel projections, the 1995 Storage Requirements Report, and the 1995 Integrated Data Base (IDB) Annual Report.

Multi-Purpose Canister Subsystem (FY 1995):

- Evaluated vendor proposals and awarded a contract for Safety Analysis Report (SAR) design of MPC/Transportation Cask/Storage Module. Began SAR design of MPC Subsystem.
- Held three national scoping meetings. Issued an EIS Implementation Plan.
- Continued to evaluate development of the MPC Subsystem for certification. Monitored vendor MPC pre-certification interactions with the NRC.
- Continued other agency/industry interactions. Continued review of regulatory documents. Continued MPC issue resolution activities.

Project Management & Integration (FY 1995):

- Maintained and updated WAST program element cost and schedule baselines. Performed Project baseline management activities. Developed WAST program element Strategic Plan. Maintained WAST program element project control system.
- Developed the OWAST Annual Plan, IRB/OMB/Congressional budget submittals, and supported the project validation review process.
- Monitored cost and schedule performance, prepared status reports, and maintained project-level schedule networks.
- Conducted/supported systems studies, life cycle cost analyses and coordinated WAST program element support of the Total System Life Cycle Cost.
- Approved the revised WAST program element Systems Engineering Management Plan to incorporate the new Program Approach and baselined the MPC System Design Requirements Documents.
- Participated in Program Interface Control Working Group and developed Interface Control Documents.
- Developed preliminary draft WAST program element Test & Evaluation Master Plan.

FY 1996 Planned Accomplishments:

Spent Fuel Storage (FY 1996):

- Conduct contingency planning, studies and analyses (i.e. for a non site specific interim storage facility safety and environmental analyses.
- The Spent Fuel Behavior in Long Term Storage Project will continue. Provide funds for spent fuel storage at West Valley.
- Complete the Dry Rod Consolidation Technology Disposition Project.
- Complete negotiations to transfer management responsibilities for DOE owned spent fuel to Office of Environmental Management (EM). Transfer will occur on October 1, 1996.

Transportation (FY 1996):

- Complete GA-4 legal-weight truck (LWT) cask scale model regulatory tests and prepare data report, prepare lessons learned report for cask model fabrication and conduct orderly shutdown. Conduct orderly shut-down of testing of the GA-9 LWT cask trailer, prepare test report, and prepare lessons learned.
- Complete revised Actinide-Only Preasurized Water Reactor Burnup Credit Topical Report based on comments received from the NRC. Complete specific studies and analyses to support the topical report.
- Publish a Notice of Proposed Policy and Procedures for implementing Section 180(c) of the NWPA in the Federal Register.
- Stakeholder interactions will continue.
- Continue contingency planning and studies to prepare for transportation of Spent Nuclear Fuel (SNF) to an interim storage facility.

Waste Acceptance (FY 1996):

- Develop a WAST Operations Plan, including a WAST Concept of Operations.
- Process Delivery Commitment Schedules (DCSs) and issue the Acceptance Priority Ranking/Annual Capacity Report. Review DCS Exchange requests as required.
- Perform Interface activities with Purchasers/Producers.
- Process commercial spent nuclear fuel inventory database.

- Interact with DOE, IAEA, NRC, utilities and others concerning safeguards, including evaluation of IAEA approach to safeguards and development of overall safeguards, security and management, compliance and administrative (MC&A) requirements.

- Respond to litigation brought by producers of SNF due to DOE not being ready to accept waste in 1998.

- Continue development and testing of a Unified Database system that supports Waste Acceptance Planning and operations.

- Coordinate with Producers to develop Waste Acceptance Criteria compatible with CRWMS design requirements and Producer's development schedule.

Multi-Purpose Canister Subsystem (FY 1996):

- Complete the SAR Design and negotiate a contract closeout.

- Complete the Preliminary Draft MPC EIS and transfer lead responsibility to the Department of the Navy.

Project Management & Integration (FY 1996):

- Provide cost, schedule, planning, and integration related tools and services: cost and schedule baseline management; Strategic and Program Plan development/update; and, project management documentation.

- Develop the OWAST Annual Plan, IRB/OMB/Congressional budget submittals, and support the project validation review process.

- Provide WAST systems engineering services and tools to: implement technical management; maintain WAST life cycle cost estimates, support TSLCC, and update WAST program element LCC Report; maintain and manage the technical baseline.

- Comply with WAST Program Element Quality Assurance requirements.

FY 1997 Planned Accomplishments:

Spent Fuel Storage (FY 1997):

- Prepare responses to Congressional and Departmental inquiries. Activities include responding to questions from Congress as legislation is debated and DOE is asked for information.

- Continue limited contingency planning, studies and analyses (i.e. generic safety and environmental analyses).

Transportation (FY 1997):

- Issue Notice of Final Policy and Procedures for implementing Section 180(c) of the NWPA.
- Stakeholder interactions will be continued.
- Continue to pursue NRC approval of the burn-up credit.
- Continue contingency planning.

Waste Acceptance (FY 1997):

- Complete testing of the Unified Database.
- Continue contingency planning.
- Interact with DOE, IAEA, NRC, utilities and others concerning safeguards, including evaluation of IAEA approach to safeguards.
- Process Delivery Commitment Schedules (DCSs) and review DCS Exchange requests as required.
- Process commercial SNF inventory database.
- Perform fee verification for commercial SNF.
- Begin implementation of RW/EM Memorandum of Agreement on acceptance of EM's waste forms, baseline preliminary Waste Acceptance Criteria (WAC) for alternative waste forms, and continue to refine and develop WAC.

Multi-Purpose Canister Subsystem (FY 1997):

- Activities were terminated in FY 1996.

Project Management & Integration (FY 1997):

- Provide cost, schedule, planning, and integration related tools and services; cost and schedule baseline management; Program Plan development/update; and, project management documentation.
- Regularly status the Project cost, schedule and technical performance.

- Develop the OWAST Annual Plan, IRB/OMB/Congressional budget submittals, and support the project validation review process.
- Provide WAST systems engineering services and tools to: implement technical management; maintain WAST life cycle cost estimates, support TSLCC, and update WAST program element LCC Report; maintain and manage the technical baseline; conduct/coordinate system studies and analyses; and perform/support verification and design control.
- Provide Environment, Safety and Health management/planning.
- Comply with WAST Program Element Quality Assurance requirements.

FY 1998 Planned Accomplishments:

Spent Fuel Storage (FY 1998):

- Prepare responses to Congressional and Departmental inquiries. Activities include responding to questions from Congress as legislation is debated and DOE is asked for information.
- Continue contingency planning, studies and analyses (i.e. non site specific safety and environmental analyses) in preparation for completion of Viability Assessment in the FY 1998-1999 timeframe.

Transportation (FY 1998):

- Work on awarding RFP for canister, transport cask and storage module production, and waste acceptance and transportation services at the appropriate time.
- Work with States and Tribes for implementing Section 180(c) of the NWPA, as amended.
- Continue to pursue NRC approval of burn-up credit
- Work on detailed development of operational procedures for waste acceptance and transportation activities.
- Continue contingency planning.

Waste Acceptance (FY 1998):

- Complete and deploy the Unified Database.
- Perform Interface activities with Purchasers/Producers.

- Interact with DOE, IAEA, NRC, utilities and others concerning safeguards, including evaluation of IAEA approach to safeguards.
- Process Delivery Commitment Schedules (DCSs) and issue the Acceptance Priority Ranking/Annual Capacity Report. Review DCS Exchange requests as required.
- Process commercial SNF inventory database.
- Perform fee verification for commercial SNF.
- Continue implementation of RW/EM Memorandum of Agreement on acceptance of EM's waste forms, baseline preliminary Waste Acceptance Criteria (WAC) for alternative waste forms, and continue to refine and develop WAC.
- Continue contingency planning.

Multi-Purpose Canister Subsystem (FY 1998):

- Activities were terminated in FY 1996.

Project Management & Integration (FY 1998):

- Provide cost, schedule, planning, and integration related tools and services; cost and schedule baseline management; Program Plan development/update; and, project management documentation.
- Regularly status the Project cost, schedule and technical performance.
- Develop the OWAST Annual Plan, IRB/OMB/Congressional budget submittals, and support the project validation review process.
- Provide WAST systems engineering services and tools to: implement technical management; maintain WAST life cycle cost estimates, support TSLCC, and update WAST program element LCC Report; maintain and manage the technical baseline; conduct/coordinate system studies and analyses; and perform/support verification and design control.
- Provide Environment, Safety and Health management/planning.
- Comply with WAST Program Element Quality Assurance requirements.

International Waste (FY 1995):

- Continued technical program agreements with Canada, Sweden and Switzerland to participate in joint activities on borehole tracer techniques, geological mapping and measurement techniques, and assessment of engineered barrier safety.

Program Management (FY 1995):

- Updated Program Work Breakdown Structure (WBS) and the Program Cost and Schedule Baselines (PCSB) to reflect the Program Approach.
- Completed FY 1995 Total System Life Cycle Cost report.
- Received approval from the Secretary of Energy to manage OCRWM as a single Strategic System rather than two Major System Acquisitions.
- Issued draft Program Management Plan that addressed the management of OCRWM as a single Strategic System.
- Completed final closeout activities for the Basalt Waste Isolation Project (BWIP) which was terminated by Congress in December 1987.

HUMAN RESOURCES AND ADMINISTRATION

Human Resources Development (FY 1995):

- Developed computerized Customer Service Plan and training program; initiated and implemented Career Development Program; and initiated consolidation of QA training and verification procedures to be used Program-wide.
- Developed human resources system which contains pertinent information on employees, including copies of position descriptions and performance plans, as well as tracks recurring mandated requirements.
- Closed out three hundred QA training and qualification records; and developed a draft plan for employee recognition.

Audits, Education and Information (FY 1995):

- Developed and submitted OCRWM's Annual Report to Congress on FY 1994 activities and expenditures.

- Prepared and submitted audited NWF and Defense Nuclear Waste Disposal financial statements to the Chief Financial Officer for transmittal to OMB.

- Developed and submitted OCRWM's Annual Assurance Memorandum required by the Federal Managers' Financial Integrity Act to the Secretary for incorporation into the Secretary's report to the President.

- Managed the NWF investment portfolio, which outperformed the intermediate Treasury Bond Fund index.

- Managed the OCRWM National Information Center (NIC), which provided information and education services to customers, stakeholders, the public, and Federal staff.

- Complied with Executive Order 12677 by conducting an HBCU Program that supported four HBCU faculty research projects and developed a new HBCU Undergraduate Scholarship Program.

- Conducted OCRWM's Radioactive Waste Management Graduate Fellowship Program, which supported fifteen academically superior graduate students pursuing advanced degrees in radioactive waste management-related fields.

Information Management (FY 1995):

- Established a corporate information management (IM) structure; developed an integrated, OCRWM-wide IM planning process; issued the first OCRWM IM Strategic Plan and initiated multi-year planning.

- Developed and implemented the OCRWM Home Page that provides access on the Internet to OCRWM programmatic information. The Home Page was accessed an average of 5,000 times per week.

- Developed and initiated the implementation of an IM performance assessment and improvement program designed to facilitate OCRWM compliance with statutes, regulations, and directives, and to promote continuous improvement of OCRWM's IM practices and operations.

- Initiated the development and implementation of an OCRWM information architecture to provide the foundation for the definition, organization, development, maintenance, and management of, and access to, all OCRWM data, records, and information systems.

- Implemented process improvements that save time, reduce costs, and enhance productivity, including paperless correspondence control, controlled milestone tracking, and automated forms systems; and a streamlined records management process that uses imaging technology to reduce entry and retrieval times.

- Installed and managed a Program-wide videoconferencing capability that provided over 800 hours of videoconferencing and significantly reduced Program travel costs.

- Fully implemented electronic messaging and calendaring capabilities that process an average of 250,000 messages per month.

Contract Business Management (FY 1995):

- Provided essential senior-level advisory staff support on streamlining office work processes and work flow; and provide Headquarters support services contractor operating and administrative expenses.

FY 1996 Accomplishments (to date and planned):

QUALITY ASSURANCE (FY 1996):

- Support increased activity (science and construction) in Exploratory Studies Facility (ESF), repository Advanced Conceptual Design (ACD), and the Geologic Repository Operations Area (GROA).

- Maintain QA Program document (QARD); make changes as needed based on program requirements.

- Support DOE Office of Environmental Management (EM) radioactive functional runs at Savannah River and West Valley.

- Continue to conduct audits, surveillances, and reviews as required by NRC regulations; support revision(s) to technical baseline (reviews and overviews); continue consolidation of Program suppliers; and complete transition of QA organizations into the M&O.

- Issue Program-wide root cause analysis procedure.

- Support WAST development of Unified Database; support WAST draft acquisition activities for procurement of a full service transportation contractor; and support WAST contingency planning and studies for a generic ISF.

PROGRAM MANAGEMENT

Systems Integration (FY 1996):

- Provide program-level systems engineering and integration support for the OCRWM program and on-going Yucca Mountain site characterization, Waste Package and Repository Design activities, and the Waste Acceptance, and Transportation.

- Provide systems engineering guidance and communicate requirements for the design of repository, surface facilities and waste packages, and storage and transportation systems.

- Ensure that the interface requirements between the repository and the WAST project are adequately addressed and managed.

- Maintain Interface Control Documents, identifying interface agreements which affect both projects and facilitate information exchange and communication with all program participants.

- Continue to integrate, update and maintain the program Baseline Management Plans and procedures, support of the Program Change Control Board, and support audits and verifications of baseline management implementation.

- Operate and maintain the OCRWM-wide Configuration Information System.

Regulatory Integration (FY 1996):

- Coordinate and participate in interactions with the Nuclear Regulatory Commission and its staff to address management and technical issues related to the repository program, interim storage and transportation of spent fuel.

- Coordinate and integrate program environmental, safety, and health activities to ensure compliance with departmental directives and policies.

- Provide policy guidance and regulatory support to the Yucca Mountain Site Characterization Office in the definition, planning, and execution of the revised geologic disposal program. Provide technical and regulatory input and policy guidance in developing the Departmental positions and technical input to the Environmental Protection Agency's development of radiation release standards for a repository at Yucca Mountain.

Strategic Planning (FY 1996):

- Continue preparing Director's and Deputy Director's briefing materials and issue papers for Administration and Congressional Testimonies.

- Continue to respond to Administrative and Congressional inquiries regarding program status, policies, and direction.

- Continue to provide liaisons with the Nuclear Waste Technical Review Board to address and resolve technical issues associated with program activities responding to Congressional direction to refocus the program and FY 1996 funding restrictions.

International Waste (FY 1996):

- Closed out technical program agreements with Canada, Sweden and Switzerland due to delayed repository site characterization activities and funding restrictions.

Program Management (FY 1996):

- Complete FY 1996 Fee Adequacy Analysis; finalize Program Management Plan; and complete streamlining of management reporting systems.
- Implement the Strategic System concept whereby the program is managed as a single system including two projects and a program integration element.
- Initiate Contract Funds Status Report (CFSR) system.
- Improve program and project management systems design and implementing procedures including redefining management responsibilities, baseline change authority thresholds, cost estimating methods, and streamlining of the planning and control system.
- Update program and project cost and schedule baselines, schedule networks, and bases of estimates.
- Complete Cost Estimating Guide.
- Consolidate support services contractors.

HUMAN RESOURCES AND ADMINISTRATION

Human Resources Development (FY 1996):

- Conduct essential quality assurance training, but delay customer service training plan.
- Maintain personnel tracking database; transfer the development and review of position descriptions and performance plans for all Headquarters personnel; and the maintenance of QA training and qualification records to management.

Audits, Education and Information (FY 1996):

- Develop and submit OCRWM's Annual Report to Congress on FY 1995 activities and expenditures, OCRWM's section of Secretary's FY 1994/1995 Performance Report, audited NWF and Defense Nuclear Waste Disposal financial statements to the Chief Financial Officer for transmittal to OMB, and develop and submit OCRWM's

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Annual Assurahce Memorandum required by the Federal Managers' Financial Integrity Act to the Secretary for incorporation into the Secretary's report to the President.

- Submit to the Congress and the Chief Financial Officer, respectively, the Department's response to final GAO reports and Departmental positions on final IG audit reports.
- Manage the NWF investment portfolio.
- Continue at reduced scope the activities performed by the NIC to focus on minimal, basic services to customers, stakeholders, the public, and Federal staff.
- Comply with Executive Order 12677 by conducting an HBCU undergraduate Scholarship Program that supports 10 students.
- Reduce the Radioactive Waste Management Graduate Fellowship Program to support twelve graduate students pursuing advanced degrees in waste management-related fields.

Information Management (FY 1996):

- Maintain local area network (LAN) and wide area network (WAN) operations at FY 1995 levels.
- Reduce scope of IM activities to a level that focuses on providing minimum essential customer services.
- Reduce computer-related training support; discontinue backup coverage and cross-training of technical support personnel; and reduce records processing capability for records backlog.

Contract Business Management (FY 1996):

- Provide support for streamlining senior management work processes and work flow; and provide Headquarters support services contractor operating and administrative expenses.

FY 1997 Planned Accomplishments

QUALITY ASSURANCE (FY 1997):

- Support continued revision(s) to Technical Baseline and the completion of DOE/EM hot functional runs for acceptance of defense vitrified waste and DOE/EM qualification of Spent Fuel Site QA Programs.
- Continue to conduct audits, surveillance, and reviews as required by NRC regulations; and coordinate performance of the QAMA process.

- Support increased activity in the Yucca Mountain Site Characterization effort.
- Support increased efforts in Repository Design.

PROGRAM MANAGEMENT

Systems Integration (FY 1997):

- Provide program-level systems engineering and integration support for the OCRWM program and on-going Yucca Mountain site characterization, Waste Package and Repository Design activities, and the Waste Acceptance, Transportation and Interim Storage efforts.
- Provide systems engineering guidance and communicate requirements for the design of repository, surface facilities and waste packages, and storage and transportation systems.
- Ensure that the interface requirements between the repository and the WAST project are adequately addressed and managed.
- Maintain Interface Control Documents, identifying interface agreements which affect both projects and facilitate information exchange and communication with all program participants.
- Support the evaluation of alternative system design proposals.
- As site characterization, repository design activities and transportation and interim storage efforts progress, incorporate latest concepts into system operation models, conduct system studies to evaluate impact of repository design and operational concepts on the overall CRWMS, and assess system cost tradeoffs, waste logistics, and storage options.
- Continue to integrate, update and maintain the program Baseline Management Plans and procedures, support of the Program Change Control Board, and support of audits and verifications of baseline management implementation.
- Operate and maintain the OCRWM-wide Configuration Information System.

Regulatory Integration (FY 1997):

- Coordinate and participate in interactions with the Nuclear Regulatory Commission and its staff to address management and technical issues related to the repository program, interim storage and transportation of spent fuel.

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- Coordinate and integrate program environmental, safety, and health activities to ensure compliance with departmental directives and policies.

- Provide regulatory assessments of storage and disposal considerations for other waste forms as proposed by other Departmental offices.

Strategic Planning (FY 1997):

- Continue preparing Director's and Deputy Director's briefing materials and issue papers for Administration and Congressional Testimonies.

- Continue to respond to Administrative and Congressional inquiries regarding program status, policies, and direction.

- Continue to provide liaisons with the Nuclear Waste Technical Review Board to address and resolve technical issues associated with site suitability activities.

International Waste (FY 1997):

- Reestablish necessary cooperative international agreements with regard to geologic disposal studies to support a delayed site suitability decision.

Program Management (FY 1997):

- Complete FY 1997 TSLCC Report; and conduct FY 1997 Fee Adequacy Analysis and publish report.

- Continue to improve program and project management systems.

- Continue to update program and project cost and schedule baselines, schedule networks, and bases of estimates.

- Update Strategic Integrated and Summary Schedule Networks.

- Continue to support implementation of improved departmental management policies.

HUMAN RESOURCES AND ADMINISTRATION

Human Resources Development (FY 1997):

- Update course outlines, instruction guides and lesson plans for quality assurance training; and conduct minimum essential quality assurance training.

- Maintain Quality Assurance training tracking system.

Audits, Education and Information (FY 1997):

- Develop and submit OCRWM's Annual Report to Congress on FY 1996 activities and expenditures, audited NWF and Defense Nuclear Waste Disposal financial statements to the Chief Financial Officer for transmittal to OMB, OCRWM's Annual Assurance Memorandum required by the Federal Managers' Financial Integrity Act to the Secretary for incorporation into the Secretary's report to the President, and the Department's formal response to final GAO reports and Departmental Positions on final Inspector General audit reports.
- Manage the NWF investment portfolio.
- Manage the provision of basic information services to customers, stakeholders, the public, and Federal staff.
- Maintain the HBCU Undergraduate Scholarship Program.
- Reduce support for Radioactive Waste Management Graduate Fellowship Program to 5 graduate students pursuing advanced degrees in waste management-related fields.

Information Management (FY 1997):

- Further postpone LAN upgrade from FY 1996.
- Postpone renewal of hardware and software contracts.
- Further reduce selected services from FY 1996 levels, including: records processing; computer-related training; and Help Desk support.
- Cancel the following planned enhancements: videoconferencing upgrade; records management process improvement; information architecture implementation; and performance assessment and improvement program implementation.

Contract Business Management (FY 1997):

- Provide essential support to the program senior management and provide Headquarters support services contractor operating and administrative expenses.

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FY 1998 Planned Accomplishments

QUALITY ASSURANCE (FY 1998)

- Support WAST Program Element FY 1998 activities including: ISF interim storage site assessment and site investigation activities, Phase I facility design, and Phase I license application activities.
- Continue to support system integration, engineering activities; and continue to support EM vitrification and DOE-owned spent fuel activities.
- Coordinate performance of QAMA process; and continue to conduct audits, surveillance, and reviews of quality affecting activities.
- Support procurement activities associated with transportation services.
- Continue to support Yucca Mountain program element site characterization effort.

PROGRAM MANAGEMENT:

Systems Integration (FY 1998):

- Provide program-level systems engineering and integration support for the OCRWM program and on-going Yucca Mountain site characterization, Waste Package and Repository Design activities, and the Waste Acceptance, Transportation and Interim Storage efforts.
- Ensure that the baseline system described in the Program-level documents is consistent with current approved program approach and responsive to project-level design needs.
- Provide systems engineering guidance and communicate requirements for the design of repository, surface facilities and waste packages, and storage and transportation systems.
- Ensure that the interface requirements between the repository and the WAST project are adequately addressed and managed.
- Maintain Interface Control Documents, identifying interface agreements which affect both projects and facilitate information exchange and communication with all program participants.
- As site characterization, repository design activities and transportation and interim storage efforts progress, incorporate latest concepts into system operation models, conduct system studies to evaluate impact of repository

design and operational concepts on the overall CRWMS, and assess system cost tradeoffs, waste logistics, and storage options.

- Continue to integrate, update and maintain the program Baseline Management Plans and procedures, support of the Program Change Control Board, and support audits and verifications of baseline management implementation.

- Operate and maintain the OCRWM-wide Configuration Information System.

Regulatory Integration (FY 1998):

- Coordinate and participate in interactions with the Nuclear Regulatory Commission and its staff to address management and technical issues related to the repository program, interim storage and transportation of spent fuel.

- Coordinate and integrate program environmental, safety, and health activities to ensure compliance with departmental directives and policies.

- Provide regulatory assessments of storage and disposal considerations for other waste forms as proposed by other Departmental offices.

Strategic Planning (FY 1998):

- Continue preparing Director's and Deputy Director's briefing materials and issue papers for Administration and Congressional Testimonies.

- Continue to respond to Administrative and Congressional inquiries regarding program status, policies, and direction.

- Continue to provide liaisons with the Nuclear Waste Technical Review Board to address and resolve technical issues associated with site suitability activities.

International Waste (FY 1998):

- Maintain necessary cooperative international agreements with regard to geologic disposal studies to support a delayed site suitability decision.

Program Management (FY 1998):

- Continue to improve program and project management systems; and continue to update program and project cost and schedule baselines, schedule networks, and bases of estimates.

- Conduct FY 1998 Fee Adequacy Analysis and publish report.

- Update Strategic Integrated and Summary Schedule Networks; and continue to support implementation of improved departmental management policies.

HUMAN RESOURCES AND ADMINISTRATION

Human Resources Development (FY 1998):

- Update course outlines, instruction guides and lesson plans for quality assurance training; conduct minimum essential quality assurance training; and maintain quality assurance tracking system.

Audits, Education and Information (FY 1998):

- Develop and submit OCRWM's Annual Report to Congress and develop OCRWM's section of the Secretary's Performance Report, OCRWM's Annual Assurance Memorandum to the Secretary, and Departmental responses to GAO and IG audit reports.

- Manage the NWF and submit audited financial statements to the CFO.

- Provide minimal, basic public information products and services.

- Conduct HBCU and OCRWM graduate fellowship programs at FY 1997 levels.

- Prepare to respond to new public information requirements if program is redirected.

Information Management (FY 1998):

- Maintain LAN operations at FY 1997 level; and maintain FY 1997 level of user support services, training, Help Desk support, and records processing.

- Mitigate effects of unfunded hardware and software maintenance agreements on systems availability.

- Minimize effects of unfunded hardware and software upgrades on compatibility and interoperability with other DOE AOSS/ADP systems and other DOE organizations.

- Reduce WAN bandwidth.

Contract Business Management (FY 1998):

- Provide essential support to the program senior management; and provide Headquarters support services contractor operating and administrative expenses.

FY 1999 Planned Accomplishments

QUALITY ASSURANCE (FY 1999):

- Continue to support WAST Program Element FY 1998 activities including: interim storage site assessment and site investigation activities, Phase I facility design, and Phase I license application activities.
- Continue to support system integration, engineering activities; and continue to support EM Vitrification and DOE-owned spent fuel activities.
- Coordinate performance of QAMA process; and continue to conduct audits, surveillance, and reviews of quality affecting activities.
- Continue to support procurement activities associated with transportation services.
- Continue to support Yucca Mountain program element site characterization, surface/subsurface testing, and repository efforts.

PROGRAM MANAGEMENT

Systems Integration (FY 1999):

- Provide program-level systems engineering and integration support for the OCRWM program and on-going Yucca Mountain site characterization, Waste Package and Repository Design activities, and the Waste Acceptance, Transportation and Interim Storage efforts.
- Ensure that the baseline system described in the Program-level documents is consistent with current approved program approach and responsive to project-level design needs.
- Provide systems engineering guidance and communicate requirements for the design of repository, surface facilities and waste packages, and storage and transportation systems.
- Ensure that the interface requirements between the repository and the WAST project are adequately addressed and managed.

- Maintain Interface Control Documents, identifying interface agreements which affect both projects and facilitate information exchange and communication with all program participants.
- Support the evaluation of alternative system design proposals.
- As site characterization, repository design activities and transportation and interim storage efforts progress, incorporate latest concepts into system operation models, conduct system studies to evaluate impact of repository design and operational concepts on the overall CRWMS, and assess system cost tradeoffs, waste logistics, and storage options.
- Continue to integrate, update and maintain the program Baseline Management Plans and procedures, support of the Program Change Control Board, and support audits and verifications of baseline management implementation.
- Operate and maintain the OCRWM-wide Configuration Information System.

Regulatory Integration (FY 1999):

- Coordinate and participate in interactions with the Nuclear Regulatory Commission and its staff to address management and technical issues related to the repository program, interim storage and transportation of spent fuel.
- Coordinate and integrate program environmental, safety, and health activities to ensure compliance with departmental directives and policies.
- Provide technical and regulatory support for the resolution of regulatory issues associated with a national transportation program that includes a substantial number of spent nuclear fuel shipments.
- Provide regulatory assessments of storage and disposal considerations for other waste forms as proposed by other Departmental offices.

Strategic Planning (FY 1999):

- Continue preparing Director's and Deputy Director's briefing materials and issue papers for Administration and Congressional testimonies.
- Continue to respond to Administrative and Congressional inquiries regarding program status, policies, and direction.
- Continue to provide liaison with the Nuclear Waste Technical Review Board to address and resolve technical issues associated with site suitability activities.

International Waste (FY 1999):

- Maintain essential cooperative international agreements with regards to geologic disposal studies to support a delayed site suitability decision.

Program Management (FY 1999):

- Continue to improve program and project management systems; and continue to update program and project cost and schedule baselines, schedule networks, and bases of estimates.
- Conduct FY 1999 Fee Adequacy Analysis and publish report.
- Update Strategic Integrated and Summary Schedule Networks.
- Continue to support implementation of improved departmental management policies.

HUMAN RESOURCES AND ADMINISTRATION

Human Resources Development (FY 1999):

- Update course outlines, instruction guides and lesson plans for quality assurance training; and conduct minimum essential quality assurance training.
- Maintain quality assurance training tracking system.

Audits, Education and Information (FY 1999):

- Develop and submit OCRWM's Annual Report to Congress, OCRWM's Annual Assurance Memorandum to the Secretary, and Departmental responses to GAO and IG audit reports.
- Manage the NWF and submit audited financial statements to the CFO.
- Provide minimal, basic public information products and services.
- Conduct HBCU and OCRWM graduate fellowship programs at FY 1997 levels.
- Prepare to respond to new public information requirements if program is redirected.

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Information Management (FY 1999):

- Maintain LAN and WAN operations at FY 1998 level; and maintain FY 1997 level of user support services, training, Help Desk support, and records processing.
- Mitigate effects of unfunded hardware and software maintenance agreements on systems availability.
- Minimize effects of unfunded hardware and software upgrades on compatibility and interoperability with other DOE AOSS/ADP systems and other DOE organizations.

Contract Business Management (FY 1999):

- Provide essential support to the program senior management; and provide Headquarters support services contractor operating and administrative expenses.

IV. **Explanation of Funding Changes FY 1996 to FY 1997**

QUALITY ASSURANCE

- The decrease of $3,247K in FY 1997 is due to the decrease in overall WAST Technical Activities including termination of the MPC program.

PROGRAM MANAGEMENT

International Waste

- The increase from zero to $700K reflects the reestablishment of cooperative international agreements with regard to geologic disposal studies which were closed out in FY 1996.

HUMAN RESOURCES AND ADMINISTRATION

Information Management

- Overall Program reductions directed by Congress for FY 1996 have resulted in an IM program that provides only minimum basic services. Because of the anticipated lack of carryover funds, selected other services will be further reduced below FY 1996 levels and all other enhancements postponed from FY 1996 will be canceled.

V. **Major Issues**

PROGRAM INTEGRATION

Strategic Planning

- Planning activities are dependent upon enactment of pending legislation and the direction or guidance provided.

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PROGRAM DIRECTION

I. Mission Supporting Goals and Objectives

Program direction provides overall direction and administrative support for the Nuclear Waste Fund program to manage and dispose of the Nation's spent nuclear fuel and high-level radioactive waste.

Program direction has been grouped into three categories: 1) Salaries and Benefits; 2) Travel; and 3) Other Related Expenses.

Salaries and Benefits

This element includes compensation for regular salaries and wages paid directly to civilian full-time permanent and other than full-time permanent employees, other payments that become a part of the employee's basic pay rate and other personnel compensation such as overtime, holiday pay and cash incentive awards. Benefits includes payments such as the employer's share of employee retirement, health and life insurance, accident compensation, Federal Insurance Contribution Act taxes, and Federal Retirement Thrift Savings Plan. Benefits also includes payments for former employees such as severance pay to employees involuntarily separated, and voluntary separation incentives. This includes payments to the unemployment fund, payments of nine percent of final basic pay to the civil service retirement fund for employees who took the early-out or buy-out authority, and payments to the Employees health benefits fund for annuitants.

Travel

This category provides funding for the transportation of Government employees, their per diem allowances while in authorized travel status, and other expenses incidental to travel that are to be paid by the Government either directly or by reimbursing the traveler.

Other Related Expenses

Other Related Expenses includes payments for rental space, telecommunications, utilities and miscellaneous charges, printing and reproduction, other services (tuition, employee development), operation and maintenance of equipment, purchases of goods and services for government accounts, supplies and materials and equipment.

II. Funding Schedule:

PROGRAM DIRECTION:	FY 1995 Comparable Appn	FY 1996 Original Appn	Real & Comp Adjust	FY 1996 Comparable Appn	FY 1997 Budget Request	FY 1998 Budget Request	FY 1999 Budget Request
Idaho:							
Salaries and Benefits	156	164	0	164	0	0	0
Travel	15	12	0	12	0	0	0
Other Related Expenses	88	92	0	92	0	0	0
Total, Idaho	259	268	0	268	0	0	0
FTE's	2	2	0	2	0	0	0
Average FTE	130	134	0	134	0	0	0
Richland:							
Salaries and Benefits	71	73	0	73	75	77	80
Travel	13	12	0	12	12	11	11
Total, Richland	84	85	0	85	87	88	91
FTE's	1	1	0	1	1	1	1
Average FTE	84	85	0	85	87	88	91
Nevada:							
Salaries and Benefits	694	348	0	348	682	704	778
Total, Nevada	694	348	0	348	682	704	778
FTE's	8	4	0	4	7	7	7
Average FTE	87	87	0	87	97	101	111
Oak Ridge:							
Salaries and Benefits	79	68	0	68	0	0	0
Travel	9	2	0	2	0	0	0
Other Related Expenses	1	1	0	1	0	0	0
Total, Oak Ridge	89	71	0	71	0	0	0
FTE's	1	1	0	1	0	0	0
Average FTE	89	71	0	71	0	0	0

Note: The Average FTE cost at Idaho represents a fully loaded (salaries, benefits, rent, utilities, telecommunications, printing etc.) FTE cost for federal personnel at the Idaho Operations Office.

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II. Funding Schedule:

PROGRAM DIRECTION:	FY 1995 Comparable Appn	FY 1996 Original Appn	Real & Comp Adjust	FY 1996 Comparable Appn	FY 1997 Budget Request	FY 1998 Budget Request	FY 1999 Budget Request
Other:							
Salaries and Benefits	1,431	1,464	0	1,464	1,504	1,546	1,639
Travel	12	10	0	10	9	9	8
Total, Other	1,443	1,474	0	1,474	1,513	1,555	1,647
FTE's	22	22	0	22	22	22	22
Average FTE	66	67	0	67	69	71	75

Note: The Other category includes salaries, benefits and travel for Department of Energy federal personnel that directly support the Office of Civilian Radioactive Waste Management (i.e. Human Resources, General Counsel, Policy, Departmental Administration, and the Chief Financial Office)

Headquarters-OCRWM:							
Salaries and Benefits	17,821	19,740	0	19,740	20,888	17,213	17,144
Travel	802	625	0	625	597	513	513
Working Capital Fund	26	0	26	26	28	28	28
Other Related Services	6,141	6,684	0	6,684	6,714	6,578	6,478
Total, Headquarters	24,790	27,049	26	27,075	28,227	24,332	24,163
FTE's	224	218	0	218	200	176	162
Average FTE	111	124	0	124	141	138	149

Note: The Headquarters Average FTE cost represents a fully loaded (salaries, benefits, rent (in Washington D.C. as well as Las Vegas Nevada), utilities, telecommunications, printing etc.) FTE cost for federal personnel at the Yucca Mountain Site Characterization Office as well as the federal personnel in Washington D.C. The change in the average cost from one fiscal year to the next can be contributed to any costs associated with a reduction in force.

TOTAL PROGRAM DIRECTION							
Salaries and Benefits	20,252	21,857	0	21,857	23,149	19,540	19,641
Travel	851	661	0	661	618	533	532
Working Capital Fund	26	0	26	26	28	28	28
Other Related Services	6,230	6,777	0	6,777	6,714	6,578	6,478
Total, Program Direction	27,359	29,295	26	29,321	30,509	26,679	26,679
FTE's	258	248		248	230	206	192
Average FTE	106	118	0	118	133	130	139

III. **Performance Summary**

FY 1995 Accomplishments

Program Direction:

- Developed and implemented a Career Development Program.
- Sponsored a Career Awareness Day for RW employees.
- Provided training to the entire RW organization on the "7 Habits of Highly Effective People."
- Completed implementation of the RW reorganization at both Headquarters and the Yucca Mountain Site Characterization Office which resulted in the elimination of all Branch Chiefs, reducing the number of offices from 44 to 23.
- Shift Full-Time Equivalents from Headquarters to the Yucca Mountain Site Characterization Office.
- Conducted RW's first quality management self-assessment at Headquarters and the Yucca Mountain Site Characterization Office based on the Malcolm Baldrige National Quality Award Criteria.
- Developed an RW EEO/Affirmative Action Plan for FY 1995.
- Began the consolidation of quality assurance training and verification of personnel procedures, which will result in one procedure which will be used program-wide.
- Instituted overtime ceilings to accommodate a 10 percent reduction in overtime costs throughout the Program.

FY 1996 Planned Accomplishments

- Institute travel ceilings in accordance with Secretarial initiative to accomplish a 20 percent reduction in travel costs.
- Develop and implement an Employee Recognition Program.
- Further streamline the RW organization to meet Secretarial initiative to achieve a 11:1 employee to supervisor ratio.
- Implement the consolidated quality assurance training and verification of personnel procedure throughout the Program.
- Continue to shift Full-Time Equivalents from Headquarters to the Yucca Mountain Site Characterization Office.
- Reduce support services contractor staff by 20 percent.

- Develop and implement a 360 degree performance appraisal process.
- Conceptualize and develop a Training Plan, which includes the Yucca Mountain Site Characterization Office.
- Conduct a quality management self-assessment at Headquarters and the Yucca Mountain Site Characterization Office.
- Continue to downsize the RW Federal staff to meet Secretarial initiatives.

FY 1997 Planned Accomplishments

- Continue to streamline the RW organization to meet Secretarial initiatives in the area of employee to supervisor ratios.
- Develop strategies to downsize organization to meet FTE levels dictated by the Secretary of Energy.
- Develop and implement Annual Training Plans and conduct Training Needs Surveys.
- Conduct yearly quality management self-assessments.

FY 1998 Planned Accomplishments

- Continue to streamline the RW organization to meet Secretarial initiatives in the area of employee to supervisor ratios.
- Develop strategies to downsize organization to meet FTE levels dictated by the Secretary of Energy.
- Develop and implement Annual Training Plans and conduct Training Needs Surveys.
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FY 1999 Planned Accomplishments

- Continue to streamline the RW organization to meet Secretarial initiatives in the area of employee to supervisor ratios.
- Develop strategies to downsize organization to meet FTE levels dictated by the Secretary of Energy.
- Develop and implement Annual Training Plans and conduct Training Needs Surveys.
- Conduct yearly quality management self-assessments.

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IV. **Explanation of Funding Changes from FY 1996 to FY 1997**

The Program will comply with the Secretary's Strategic Alignment by reducing its FTE's from 248 in FY 1996 to 230 in FY 1997. Historical records indicate that these reductions will be concentrated in the last quarter of FY 1997. Therefore, because the departures are late in the fiscal year, the Program requires an increased funding profile in FY 1997 to fund both salaries/benefits and any costs associated with the reduction of 18 FTE's.

V. **Explanation of Average FTE Costs**

Headquarters represents a fully loaded FTE cost for federal personnel at the Yucca Mountain Site Characterization Office as well as the federal personnel in Washington D.C. This specifically includes salaries, benefits, travel, rent at the Forrestal building, rent at the facility in Las Vegas, utilities, telecommunications as well as materials and supplies. The change in the average cost from one fiscal year to the next can be contributed to any costs associated with a reduction in force.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
PROGRAM DIRECTION OBJECT CLASS SUMMARY
NUCLEAR WASTE ACTIVITIES
(Dollars in Thousands)

Direct Obligation:	FY 1995 Non Comparable	FY 1995 Comparable	FY 1996 Non Comparable	FY 1996 Comparable	FY 1997	FY 1998	FY 1999
Personnel Compensation:							
11.1 Full-time permanent.....	$ 15,330	$ 15,349	$ 16,316	$ 16,316	$ 16,399	$ 14,539	$ 13,886
11.3 Other than full-time permanent..	813	813	874	874	900	828	757
11.5 Other personnel compensation....	606	606	650	650	670	616	563
11.9 Total Personnel Compensation.....	16,749	16,768	17,840	17,840	17,969	15,983	15,206
12.1 Civilian personnel benefits.....	3,250	3,250	3,766	3,766	4,900	3,300	4,200
13.0 Benefits for former personnel...	234	234	251	251	280	257	235
21.1 Travel and trans. of persons....	851	851	661	661	618	533	532
22.0 Transportation of things.....	98	98	106	106	110	114	119
23.2 Rental payments to others.....	700	700	728	728	1,231	1,280	1,331
23.3 Communications and utilities....	490	490	561	561	510	530	551
24.0 Printing and reproduction.....	88	88	96	96	100	104	108
25.2 Other services.....	4,922	4,740	5,134	5,160	4,632	4,413	4,225
26.0 Supplies and materials.....	140	140	152	152	159	165	172
99.0 Total Nuclear Waste Fund	$ 27,522	$ 27,359	$ 29,295	$ 29,321	$ 30,509	$ 26,679	$ 26,679

Alaska Power Administration

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Power Marketing Administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	30,533	29,902	27,445	-2,457	-8.2%
Southwestern power administration	30,548	30,748	27,804	-2,944	-9.6%
Western Area Power Administration					
Western area power administration	323,896	276,676	248,691	-27,985	-10.1%
Transfer of current authority from DOI	1,800	4,556	3,774	-782	-17.2%
Total, Western Area Power Administration	325,696	281,232	252,465	-28,767	-10.2%
Falcon and Amistad Operating and Maintenance Fund	—	1,000	970	-30	-3.0%
Colorado River Basin Power Marketing Fund					
Spending authority from offsetting collections	98,066	129,414	120,431	-8,983	-6.9%
Offsetting collections	-98,066	-129,414	-130,431	-1,017	-0.8%
Total, Colorado River Basin Fund	—	—	-10,000	-10,000	—
Subtotal, Power Marketing Administrations:	393,269	347,142	302,684	-44,458	-12.8%
Use of prior year balances and other adjustments	-158,694	-29,710	-38,249	-8,539	-28.7%
Total, Power Marketing Administrations	**234,575**	**317,432**	**264,435**	**-52,997**	**-16.7%**

PROPOSED APPROPRIATION LANGUAGE

For necessary expenses of operation and maintenance of projects in Alaska and of marketing electric power and energy, [$4,260,000] $4,000,000, to remain available until expended.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ALASKA POWER ADMINISTRATION
(Tabular dollars in thousands, Narrative in whole dollars)

ALASKA POWER ADMINISTRATION

EXECUTIVE BUDGET SUMMARY

Mission:

Alaska Power Administration will continue to encourage economic and industrial development in Alaska, and repay the taxpayers' investment by providing and marketing reliable hydroelectric power generated at its facilities. We will market the power at the lowest rates possible, and operate and maintain our generation and transmission facilities in a safe and environmentally-sensitive manner consistent with sound business principles.

Alaska Power Administration markets power produced at its two hydroelectric generating projects, Snettisham located near Juneau and Eklutna located near Anchorage within the State of Alaska. Preference is given in the sale of the power to public bodies and cooperatives.

Alaska Power Administration owns and operates all of its generation and transmission facilities.

Alaska Power Administration is in the process of implementing the Alaska Power Administration Asset Sale and Termination Act (Public Law 104-58). The law authorizes the sale of the Alaska Power Administration assets. However, Congressional approval is still needed for the use of tax-exempt bonds to finance the purchase of the Snettisham Project. This budget request is to provide continued operation and maintenance of both projects during Federal ownership. If the transfers take place before the end of FY 1997, any unobligated appropriations will be returned to the Treasury of the United States according to Alaska Power Administration Asset Sale and Termination Act.

The GOALS of Alaska Power Administration are to:

1. Maximize energy production in an efficient, reliable, safe, and environmentally-sensitive manner for our customers, and minimize long-term costs while protecting the federal investment.

2. Operate, maintain, and market power from Eklutna and Snettisham in accordance with authorizing legislation and continuing full utilization of each Projects' energy and peaking capabilities.

The OBJECTIVES related to these goals are:

1. To PROVIDE TRAINING for employees to enhance marketability.

2. To MAXIMIZE ENERGY PRODUCTION by operating both projects in an efficient, reliable, safe, and environmentally-sensitive manner, while protecting the Federal investment;

3. To PERFORM ALL NECESSARY MAINTENANCE to project facilities.

4. To ENHANCE PUBLIC USE OF PROJECT LANDS AND FACILITIES via visitation, reservoir recreation, cooperation with the Alaska Department of Fish and Game in salmon production at Snettisham, and cooperation with the Cook Inlet Aquaculture Association's fish hatchery and Municipality of Anchorage's water supply projects at Eklutna.

EMERGENCY FUND

The FY 1997 request assumes $200,000 in emergency funds appropriated by Congress in FY 1984 to ensure continuity of service will remain available in FY 1997 for that purpose. In the event the use of emergency funds is necessary in FY 1997, immediate restoration of the fund will be requested to maintain operation of APA's financial flexibility to respond to unplanned events.

PERFORMANCE MEASURES:

Performance measures related to Alaska Power Administration are based on outputs and outcomes. Data for each output is collected at its own frequency. These outputs are aimed at achieving specific outcomes including, establishment of rates sufficient to make full and timely payment to the U.S. Treasury, maintenance of the health and safety of all employees, development and achievement of the operation of a reliable, low-cost, environmentally-sound generation system which facilitates competitive and efficient wholesale power supplies. This data is compared with past data to insure APA outputs and outcomes are appropriate. Outputs include:

1. Debt service coverage ratio.

2. Cumulative principle payments as a percentage of total Federal debt.

3. Percent variance of actual from planned annual principle payments.

4. Net cash flow to Treasury.

5. Generation reliability index.

6. Transmission reliability index.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- APA's streamlining efforts resulted in a 33% reduction of supervisory positions in APA Headquarters.
- APA has remained within the allotted FTE ceiling and will continue to conduct position analysis of all vacancies to determine if each position must be filled or utilize alternative methods where applicable to accomplish needed work.
- Based upon the historical high level of turnover and advanced office automation efforts and technology there will be decreased administrative and budget/finance staff support needs, we will achieve the FY 1997 FTE target number through attrition:

FY 95	FY 96	FY 97
30	35	34

- Public Law 104-58, signed by the President on November 28, 1995, authorizes the sale of the Alaska Power Administration assets. The Snettisham Project will be sold to the State of Alaska and the Eklutna Project to the three current power customers, Municipal Light and Power, Chugach Electric Association, Inc. and Matanuska Electric Association, Inc. While DOE and APA expect to complete the sale of the Eklutna Project by early 1997 and continue to pursue the financing arrangements for the completion of the sale of the Snettisham Project to the State of Alaska, continued operation and maintenance of the projects while under Federal ownership will remain a priority. As such, the FY 1997 request provides minimal funding and personnel ceiling for the continuation of the operation, maintenance, and power marketing programs at APA.

ALASKA POWER ADMINISTRATION

PROGRAM MISSION

Alaska Power Administration (APA) will continue to encourage economic and industrial development in Alaska, and repay the taxpayers' investment by providing and marketing reliable hydroelectric power generated at its facilities. We will market the power at the lowest rates possible, and operate and maintain our generation and transmission facilities in a safe and environmentally-sensitive manner consistent with sound business principles.

APA facilities are the 78 megawatt Snettisham Project near Juneau and the 30 megawatt Eklutna Project near Anchorage. APA markets wholesale power to four Alaskan utilities, providing approximately 5% of Anchorage's and 80% of Juneau's power requirements. The project facilities include dams, reservoirs, powerplants, transmission systems, and necessary maintenance facilities.

Alaska Power Administration is in the process of implementing the Alaska Power Administration Asset Sale and Termination Act (Public Law 104-58). The law authorizes the sale of the Alaska Power Administration assets. However, Congressional approval is still needed for the use of tax-exempt bonds to finance the purchase of the Snettisham Project. This budget request is to provide continued operation and maintenance of both projects during Federal ownership. If the transfers take place before the end of FY 1997, any unobligated appropriations will be returned to the Treasury of the United States according to Alaska Power Administration Asset Sale and Termination Act.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ALASKA POWER ADMINISTRATION

PROGRAM FUNDING PROFILE
(in thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Operation and Maintenance	$ 3,404	$ 4,260	$ (3,208)	$ 1,052	$ 0
Program Direction	3,088	0	3,208	3,208	4,000
Subtotal Alaska Power Administration	$ 6,492	$ 4,260	$ 0	$ 4,260	$ 4,000
Adjustment					
TOTAL	$ 6,492	$ 4,260	$ 0	$ 4,260	$ 4,000

Public Law Authorizations:

Pub. Law 95-91, DOE Organization Act (1977), Section 302
Eklutna Project Act July 31, 1950, (64 Stat. 382)
Flood Control Act, Section 204 (82 Stat. 875)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ALASKA POWER ADMINISTRATION

PROGRAM OBJECT CLASS SUMMARY

Personnel Compensation:		FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997 Request
11.1	Full-time permanent	$ 0	$ 1,559	$ 0	$ 1,691	$ 0
11.3	Other than full-time permanent	0	125	0	101	0
11.5	Other Personnel compensation	0	76	0	75	0
						0
11.9	Total Personnel Compensation	$ 0	$ 1,760	$ 0	$ 1,867	$ 0
						0
12.1	Civilian personnel benefits	0	582	0	607	0
13.0	Benefits for former personnel	0	0	0	0	0
21.0	Travel and transportation of persons	0	250	0	261	0
22.0	Transportation of things	0	120	0	126	0
23.1	Rental Payments to GSA	0	105	0	105	0
23.3	Communications, utilities, and miscellaneous charges	0	52	0	52	0
24.0	Printing and reproduction	0	20	0	20	0
25.1	Other services	261	386	228	332	0
25.2	Purchases of goods and services from Government accounts	87	87	74	74	0
26.0	Supplies and materials	163	204	161	202	0
31.0	Equipment	2,893	2926	589	614	0
99.9	TOTAL	$ 3,404	$ 6,492	$ 1,052	$ 4,260	$ 0

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ALASKA POWER ADMINISTRATION

PROGRAM DIRECTION OBJECT CLASS SUMMARY

Personnel Compensation:		FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997 Request	
11.1	Full-time permanent	$ 1,559	$ 0	$ 1,691	$ 0	$ 1,608	
11.3	Other than full-time permanent	125	0	101	0	101	
11.5	Other Personnel compensation	76	0	75	0	81	
11.9	Total Personnel Compensation	$ 1,760	$ 0	$ 1,867	$ 0	$ 1,790	
12.1	Civilian personnel benefits	582	0	607	0	548	
13.0	Benefits for former personnel	0	0	0	0	108	
21.0	Travel and transportation of persons	250	0	261	0	198	*
22.0	Transportation of things	120	0	126	0	61	
23.1	Rental Payments to GSA	105	0	105	0	117	
23.3	Communications, utilities, and miscellaneous charges	52	0	52	0	65	
24.0	Printing and reproduction	20	0	20	0	3	
25.1	Other services	125	0	104	0	390	*
25.2	Purchases of goods and services from Government accounts	0	0	0	0	513	*
26.0	Supplies and materials	41	0	41	0	137	*
31.0	Equipment	33	0	25	0	70	*
99.9	TOTAL	$ 3,088	$ 0	$ 3,208	$ 0	$ 4,000	

* Due to enactment of Public Law 104-58, activities that would normally have been operation and maintenance activities are now considered being in direct support of APA's transition. These normal operation and maintenance costs are included in Program Direction for FY 1997. APA also anticipates an increase in turnover due to the enactment of Public Law 104-58. APA will need to obtain normal operation and maintenance services from other Federal and private sector agencies to deal with the increase in turnover.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ALASKA POWER ADMINISTRATION

OPERATION AND MAINTENANCE

I. Mission Supporting Goals and Objectives:

In past years, Alaska Power Administration's (APA) operation and maintenance program has insured that the two projects generate and transmit reliable electric power in a clean and environmentally safe yet cost-effective manner. This has been achieved by maintaining the power plants and transmission lines at or above industry standards, mitigation of adverse environmental impacts by design and monitoring programs, and performing clean-up of existing problems. Training is provided in the areas of safety and environmental matters so that our staff can perform at their best in a cost efficient manner.

As of September 30, 1995, the projects represent a cumulative Federal investment, including replacements, of $208,462,049. Through FY 1995, $44,262,551 has been repaid in addition to $77,019,172 in interest.

Continued operation and maintenance of the projects remains the priority.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Operation and Maintenance	$ 3,404	$ 1,052	$ 0	$ -1,052	-100%
Total, Operation and Maintenance	$ 3,404	$ 1,052	$ 0	$ -1,052	-100%

III. Performance Summary:

FY 1995 Accomplishments:

- Continued maintenance, replacement, and improvement programs at both Eklutna and Snettisham Projects facilities.
- Completed the emergency tower relocation associated with the FY 1994 landslide at the Snettisham project.
- Procured replacement stator cores, stator windings and field windings to begin the Eklutna unit winding replacement program.
- Provided net-billing arrangements to cover costs of non-Federal operators and routine transmission line maintenance at both Eklutna and Snettisham Projects.

FY 1996 Accomplishments (to date and planned):

- Continuation of maintenance, replacements, and improvements at each of the project facilities, including the Eklutna unit winding replacement program.
- Maintain reliability, efficiency, and safety of the power systems.
- Perform right-of-way clearing and repairing of concrete in the Crater Lake power tunnel.
- Continue net-billing arrangements to cover costs of non-Federal operators and routine transmission line maintenance at both Eklutna and Snettisham Projects.

Explanation of Funding Decrease from FY 1996 to FY 1997:

- FY 1997 reflects a decrease of $1,052,000, for a total of $0. Due to the enactment of Public Law 104-58, activities that would normally have been operation and maintenance activities, are now considered being in direct support of APA's transition. All these normal operation and maintenance costs are included in Program Direction.

PROGRAM DIRECTION

I. Mission Supporting Goals and Objectives:

Program direction provides overall mission implementation and support for Alaska Power Administration's (APA) Operations and Maintenance programs to ensure that all activities are conducted in an environmentally safe manner at the lowest possible cost in accordance with sound business principles and general administration and support of APA's power marketing program.

Program direction has been grouped into four categories:

- Salaries and Benefits provides for funding a staffing level of 34 Full-Time Equivalents. This will provide the staffing level that will allow for normal operations and maintenance activities at both Projects for FY 1997. APA's actual staffing levels will depend on the effectiveness of APA and DOE's employee placement assistance and when the Projects transfer to non-Federal ownership. Congressional approval is still needed for the use of tax-exempt bonds to finance the purchase of the Snettisham Project.

- Travel provides for funding the transportation of Government employees, their per diem allowances and other incidental expenses related to travel for official business. It consists of travel away from official duty stations and local travel and transportation of persons. Various travel includes site visits, information meetings, training, presentations, conferences, relocation moves, etc.

- Support Services provides for funding of contractual services and related supplies and materials in support of administrative functions.

- Other Related Expenses costs of space rental, communications, utilities and miscellaneous charges, printing, training, tuition, contract services, financial audit of APA, operation and maintenance of equipment, supplies and materials, and equipment.

II. Funding Schedule:

Program Direction	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salary and Benefits	$2,342	$0	$2,474	$2,474	$2,446
Travel	250	0	261	261	198
Support Services	290	0	296	296	451
Other Related Expenses	206	0	177	177	905
Total	$3,088	$0	$3,208	$3,208	$4,000
Full-Time Equivalents	30	0	35	35	34
Average	$103	$0	$92	$92	$118
Adjustment	0	0	0	0	0
Budget Authority	$3,088	$0	$3,208	$3,208	$4,000

Alaska Power Administration is in the process of implementing the Alaska Power Administration Asset Sale and Termination Act (Public Law 104-58). The law authorizes the sale of the Alaska Power Administration assets. However, Congressional approval is still needed for the use of tax-exempt bonds to finance the purchase of the Snettisham Project. This budget request is to provide continued operation and maintenance of both projects during Federal ownership. If the transfers take place before the end of FY 1997, any unobligated appropriations will be returned to the Treasury of the United States according to Alaska Power Administration Asset Sale and Termination Act.

III. Performance Summary:

FY 1995 Accomplishments:

- Continued maintenance programs at both Eklutna and Snettisham Projects facilities.
- Provided full range of administrative and management services in support of power operation, maintenance, and marketing functions.
- Installed Eklutna's main power transformers.
- Marketed 389 GWH of clean renewable hydroelectric energy providing total proprietary receipts of $9,437.00.
- Emphasized environmental, safety, and health programs by providing the compliance activity, proper waste management, training, and equipment necessary to comply with current regulations.
- Fully allocated all energy from both APA projects by completing negotiations with customers to renew long-term wholesale power contracts with all customers and signing a wholesale contract for surplus power from the Snettisham project.

FY 1996 Accomplishments (to date and planned):

- Continuation of maintenance at each of the project facilities.
- Provide full range of administrative and management services in support of power operation, maintenance, and marketing functions.
- Market 416 GWH of clean renewable hydroelectric energy providing total proprietary receipts of $10,302.00.
- Continue cost-effective cooperative agreements for shared air charter services to Snettisham to cover costs of non-Federal operators and routine transmission line maintenance at both Eklutna and Snettisham Projects.

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FY 1997 Planned Accomplishments:

- Continue normal operation and maintenance at each of the project facilities to maintain the efficiency, reliability, and safety of the power systems until the Projects are transferred to the new owners.
- Continue the maintenance backlog reduction program at both facilities.
- Market 394 GWH of clean renewable hydroelectric energy providing total proprietary receipts of $8,155.00.
- Provide employee training, career counseling, assistance in placement, severance, relocation and retention as appropriate.
- Continue the full range of administrative and management services in support of power operation, maintenance, and marketing functions. This includes the Administrator's Office and staff work in support of the proposed divestiture. The request also provides for management of the environmental, safety and health programs at APA. The request is sufficient to assure compliance with the CFO Act requirements.

IV. Explanation of Funding Increase from FY 1996 to FY 1997:

FY 1997 reflects an increase of $792,000, for a total of $4,000,000 to provide funding at the most minimal level possible for maintenance of the projects. Detailed as follows:

- Decrease of $28,000 in salaries and benefits is due to the net result between cost of living increase, overtime, loss of Full-Time employee, and unfilled vacancies.
- Decrease of $63,000 in travel costs is the result of less employees requiring travel funding and no air charter contract.
- Increase of $155,000 in Support Services is the result of more contracting out due to less staff.
- Increase of $728,000 in Other Related Expenses reflects the enactment of Public Law 104-58, APA considers normal operation and maintenance costs to be in direct support of APA's transition and is included in program direction. APA also anticipates an increase in turnover due to the enactment of Public Law 104-58. Dealing with this increase in turnover will also increase our FTE related costs. APA will need to obtain normal operation and maintenance services from other Federal and private sector agencies to deal with the increase in turnover. The average FTE costs in FY 1996 represent all salaries and benefits, all travel expenses, and related personnel costs such as space rental, utilities, material and supplies, telecommunications, building maintenance, and equipment.

V. Explanation of Average FTE Costs:

Average FY 1997 FTE cost increase is due primarily to the enactment of Public Law 104-58. APA considers normal operation and maintenance to be in support of APA transition and is including these costs in program direction.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ALASKA POWER ADMINISTRATION

REVENUES AND RECEIPT REPORT
(dollars in thousands)

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Alaska Power Administration							
Gross Receipts	$10,387	$11,144	$10,655	$11,160	$11,192	$11,224	$11,320
Sale and transmission of electric energy at the Eklutna Project	$2,791	$3,050	$2,585	$3,050	$3,050	$3,050	$3,050
Sale and transmission of electric energy at the Snettisham Project	$7,596	$8,094	$8,070	$8,110	$8,142	$8,174	$8,270
Net billing amount credited as an offsetting receipt	$-950	$-842	$-2,500	$-2,600	$-2,704	$ -2,812	$ -2,925
Total Proprietary Receipts	$9,437	$10,302	$8,155	$8,560	$8,488	$8,412	$8,395
Percent of sales to preference customers	37%	39%	34%	39%	39%	38%	38%
Energy Sales and Power Marketed (in billions of kilowatt hours)	0.4	0.4	0.4	0.4	0.4	0.4	0.4

FY 1995 net billing amount of $1,130K includes $530K for normal operations and maintenance activities and $600K to complete the Snettisham 12/2 Transmission Line Landslide work.

FY 1996 increase in net billing to $842K from $542K and the increase in FY 1997 net billing to $2,500K is in anticipation of performing Snettisham operations and maintenance through a net billing contract. APA is in the process of determining whether the local utility is receptive to this proposal.

Pending the passage of necessary legislation authorizing the use of tax-exempt financing for the purchase of the Snettisham Project, and the actual transfer dates of the Eklutna Project and the Snettisham Project, Receipt estimates will be revised accordingly.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
POWER MARKETING ADMINISTRATION
ALASKA POWER ADMINISTRATION

SYSTEM STATISTICS

	FY 95 Actual	FY 96 Estimate	FY 97 Estimate
Generating Capacity:			
Installed Capacity (KW)	108,160	108,160	108,160
Leasing Capacity (KW)	0	0	0
Peak Capacity (KW)	108,160	108,160	108,160
Generating Stations:			
Generating Projects (No.)	2	2	2
Substations/Switchyards (No.)	5	5	5
Substations/Switchyards (KVA Capacity)	237,000	237,000	237,000
Available Energy:			
Energy Generated (MWH)	392,000	419,000	394,000
Energy Purchased (MWH)	0	0	0
Energy Available for Marketing (MWH)	389,000	416,000	391,000
Transmission Lines (Circuit Miles):			
115 KV	44	44	44
138 KV	44	44	44
Total Circuit Miles	88	88	88

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Bonneville Power Administration

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
BONNEVILLE POWER ADMINISTRATION

PROPOSED APPROPRIATION LANGUAGE

Expenditures from the Bonneville Power Administration Fund, established pursuant to Public Law 93-454, are approved for construction of Eastern Canadian Intertie (Coulee-Oliver) facilities and for official reception and representation expenses in an amount not to exceed $3,000.

During fiscal year [1996] 1997, no new direct loan obligations may made.

EXPLANATION OF CHANGE

Proposed FY 1997 appropriation language provides express approval by Congress for the initiation of construction of "major transmission facilities" (Coulee-Oliver, which will provide transmission facilities that are required for returning the Canadian entitlement power to Canada under the 1964 Columbia River Treaty) as required by sections 3 and 4 of Public Law 93-454, the Federal Columbia River Transmission System Act of 1974; authorizes official reception and representation expenses in the same amount as FY 1996; and deletes language relating to new direct loans for energy conservation under Public Law 96-501, the Pacific Northwest Electric Power Planning and Conservation Act.

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DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
FY 1997 CONGRESSIONAL BUDGET SUBMISSION

EXECUTIVE SUMMARY

PROGRAM MISSION OVERVIEW

Bonneville Power Administration (BPA) is one of the Department of Energy's electric power marketing administrations. BPA provides electric power (about half of the electricity consumed in the region), transmission (about four-fifths of the region's high voltage transmission capacity), and energy services throughout the Pacific Northwest, a 300,000 square mile service area. BPA markets the power produced at 30 Federal hydroelectric multipurpose dams in the Pacific Northwest by the Corps of Engineers and the Bureau of Reclamation, and acquires non-Federal power and electric energy conservation resources to meet the needs of its customer utilities.

Congress created BPA in 1937 with the Bonneville Project Act, providing BPA's basic statutory utility responsibilities and authorities. In 1974, with the Federal Columbia River Transmission System Act , placed BPA under provisions of the Government Corporation Control Act and provided BPA with "self-financing" authority, allowing BPA to use its revenues from electric rate payers to directly fund all programs and to sell bonds to the US Treasury to finance the region's high-voltage electric transmission system requirements. In 1980, with enactment of the Pacific Northwest Electric Power Planning and Conservation Act ,BPA's utility obligations and responsibilities were expanded to meet requesting utility loads, encourage electric energy conservation and develop renewable energy resources, and protect, mitigate and enhance the fish and wildlife of the Columbia River and its tributaries. In support of these expanded responsibilities, BPA's Treasury borrowing authority was expanded to allow the sale of bonds to finance conservation and other resources and carry out fish and wildlife capital improvements.

BPA receives no annual appropriations from Congress. BPA funds the expense portions of its budget and repays the Federal investment in the Federal Government's Pacific Northwest power system with revenues from electric rates. BPA is authorized to sell bonds to the Treasury up to a cumulative outstanding total of $3.75 billion. Through FY 1995, BPA has returned approximately $12 billion to the Treasury in interest, amortization, and repayment of Federal power generation, operation, maintenance, and construction costs. During FY 1997, BPA plans to pay to the Treasury in full its annual scheduled amortization payment which will be based on the 1996 Supplemental Rate Proposal. Currently, the FY 1997 Treasury payment is estimated to be $835 million, of which $263 million is to repay investment principal. The principal and interest components of this estimate, as well as the total, will be updated following completion of BPA's 1996 Supplemental Rate Proposal and finalized when the rates are filed with the Federal Energy Regulatory Commission. The new rates are expected to be in place at the start of FY 1997.

BPA's FY 1997 budget submission incorporates the budget reductions BPA has made to remain competitive in the electric utility industry in the Pacific Northwest as the industry restructures itself. These spending levels were used to develop the revenue requirement for the 1996 Supplemental Rate Proposal. These estimates are still subject to change due to several reasons, including: 1) continued review of spending levels by BPA, as well as by its customers and constituents as part of the rate case proceedings, 2) potential termination costs of contracts BPA is closing out, and 3) changing fiscal dynamics of ongoing activities and program shifts to remain competitive in the Pacific Northwest's electric utility industry, particularly aspects of BPA's debt repayment, utility structure and governance, regional conservation goals and regional fish and wildlife challenges.

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FUNDING SUMMARY

	FY 1995	FY 1996	FY 1997
	$ in 000	$ in 000	$ in 000
CAPITAL INVESTMENT OBLIGATIONS			
Marketing, Conservation & Production	$ 59,000	$ 105,000	$ 54,000
Transmission Services	$ 150,000	$ 165,000	$ 163,000
Associated Projects	$ 18,000	$ 31,000	$ 18,000
Environment, Fish & Wildlife	$ 43,000	$ 41,000	$ 40,000
Capital Equipment	$ 17,000	$ 13,000	$ 12,000
Total Capital Program (Borrowing Authority)	**$ 287,000**	**$ 355,000**	**$ 287,000**
EXPENSED PROGRAM OBLIGATIONS	$ 2,751,000	$ 2,949,000	$ 3,055,000
REIMBURSABLE	$ 41,000	$ 20,000	$ 18,000
TOTAL BUDGET OBLIGATIONS	$ 3,079,000	$ 3,324,000	$ 3,360,000
CAPITAL TRANSFERS (cash)	$ 476,000	$ 267,000	$ 263,000
TOTAL BPA BUDGET	$ 3,555,000	$ 3,591,000	$ 3,623,000
BPA STAFFING (FTE)	3,313	3,272	3,272

FY 1997 PERFORMANCE OBJECTIVES

- Produce gross revenues of $ 3.3 billion from the $ 13 billion FCRPS investment, and repay US treasury $ 835 million.
- Obligate $ 287 million in new capital investments for transmission services, conservation and renewable energy resources, and F&W.
- Sell about 75,000,000 megawatt-hours of electricity and wheel and exchange an additional 75, 000,000 megawatt-hours of electricity.
- Operate and maintain 14,800 circuit-miles of electric transmission lines, 400 electric substations and associated facilities with 77,000,000 kilovolt-amperes of capacity, and related utility and general plant, with a combined capital investment of $ 5 billion
- Provide and reliably operate about 80 percent of the 300,000 square-mile Pacific Northwest's high-voltage electric energy transmission capacity and work with other regional utilities and others to ensure an effective, efficient power supply sytem.

These performance objectives support BPA's goal to :
Provide electric power, transmission, and energy services in increasingly competitive markets.
Support achievement of BPA fish and wildlife, energy conservation, renewable energy and low-cost power responsibilities.
Remain a low-cost producer and creative, flexible marketer in the PNW, helping ensure the economic and environmental health of the PNW.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION

PROGRAM FUNDING PROFILE a/
(in thousands of dollars)

	FY 1995 Actual	FY 1996 Proposed b/	FY 1996 Amendment	FY 1996 Revised	FY 1997 Proposed c/
Capital Investment (Obligations)					
1 Marketing, Conservation & Production	59,000	84,000	0	105,000	54,000
2 Transmission Services	150,000	223,000	0	165,000	163,000
3 Associated Projects	18,000	25,000	0	31,000	18,000
4 Environment\Fish & Wildlife	43,000	32,000	0	41,000	40,000
5 Capital Equipment	17,000	13,000	0	13,000	12,000
6 Capitalized Bond Premiums	0	0		0	0
7 **TOTAL CAPITAL OBLIGATIONS**	**287,000**	**377,000**	**0**	**355,000**	**287,000**
Expensed and Reimbursable (Obligations)					
8 Expensed	2,751,000	3,032,000	0	2,949,000	3,055,000
9 Reimbursables	41,000	86,000	0	20,000	18,000
10 **TOTAL OBLIGATIONS (lines 7+8+9)**	**3,079,000**	**3,495,000**		**3,324,000**	**3,360,000**
11 **CAPITAL TRANSFERS (cash)**	476,000	201,000	0	267,000	263,000
12 **BPA TOTALS (lines 11+12)**	**3,555,000**	**3,696,000**	**0**	**3,591,000**	**3,623,000**
13 Staffing (FTE) d/	3,313	3,325	--	3,272	3,272

a/BPA's FY 1997 budget has been prepared in accord with the Budget Enforcement ACT (BEA) of 1990. Under this Act all BPA budget estimates are mandatory and are not subject to discretionary "caps" in the BEA. These estimates support activities legally separate from discretionary activities and accounts. Thus, changes to BPA estimates cannot be used to affect any other budget categories such as domestic discretionary, or defense discretionary which have their own legal dollar caps. Because BPA operates within existing legislative authority, BPA is not subject to a BEA "pay-as-you-go" test regarding its revision of funding estimates. b/ This estimate reflects BPA's FY 1996 Congressional Budget Submission.

c/ This estimate is consistent with BPA's 1996 Supplemental Rate Proposal, Dec. 1995.

d/ FTE reflect DOE FY 1996/1997 Staffing Budget.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION
CURRENT SERVICES TOTAL
(in millions of dollars)

FRB 06-Mar-96

BP-1 SUMMARY	FY 1995		FY 1996		FY 1997		FY 1998	FY 1999	FY 2000	FY 2001
TOTAL OBLIGATIONS/OUTLAYS										
	Obligations	Outlays	Obligations	Outlays	Obligations	Outlays	Obligations	Obligations	Obligations	Obligations
1 Residential Exchange	1,007	1,007	976	976	1,140	1,140	1,060	1,080	1,033	1,139
2 Marketing, Conservation & Production 1/	1,096	1,213	1,302	1,301	1,159	1,180	1,193	1,241	1,239	1,211
3 Transmission Services	289	310	313	323	309	315	359	357	425	478
4 Environment\Fish & Wildlife	79	109	146	146	147	147	138	131	131	143
5 Interest	398	396	379	379	394	394	405	410	408	426
6 Associated Projects - Capital	18	25	31	31	18	18	13	36	54	56
7 Associated Project Costs 1/	126	136	136	136	155	155	157	178	190	223
8 Capital Equipment	17	17	13	13	12	12	12	13	13	14
9 Planning Council	8	8	8	8	8	8	9	9	9	10
10 Reimburseable	41	41	20	20	18	18	16	17	14	18
11 Capitalized Bond Premiums	0	0	0	0	0	0	0	0	0	0
12 **TOTAL OBLIGATIONS/OUTLAYS 2/**	**3,079**	**3,262**	**3,324**	**3,333**	**3,360**	**3,387**	**3,362**	**3,472**	**3,516**	**3,718**
REVENUES AND REIMBURSEMENTS										
	Accrued	Cash	Accrued	Cash	Accrued	Cash	Accrued	Accrued	Accrued	Accrued
13 Revenues 3/	3,182	3,338	3,360	3,356	3,338	3,334	3,368	3,438	3,483	3,489
14 Reimbursements	45	45	20	20	18	18	16	17	14	18
15 **TOTAL REVENUES & REIMBURSEMENT**	**3,227**	**3,383**	**3,380**	**3,376**	**3,356**	**3,352**	**3,384**	**3,455**	**3,497**	**3,507**
BUDGET AUTHORITY (NET)/OUTLAYS (NET)										
16 **BUDGET AUTHORITY (NET) 4/**	(189)		(53)		8		(22)	17	19	211
17 **OUTLAYS (NET)**		(121)		(43)		35	(22)	17	19	211

1/ The Associated Project Costs amount in line 7 includes the amortization of Bureau of Reclamation appropriations and irrigation assistance, which are treated as obligations and outlays. Bureau amortization is as follows ($ in millions): $2 in FY 1995, $0 in FY 1996, $15.3 in FY 1997, $6.8 in FY 1998, $ 22.1 in FY 1999, $27.9 in FY 2000 and $51.4 in FY 2001. Irrigation assistance is reflected as $25.1 in FY 1997 & $10.2 in FY 2001 only. These amortization amounts are subject to change as Bonneville prepares repayment studies for the 1996 Rate Case.

2/ Bonneville's total obligations as displayed above are still tentative and subject to change since BPA has not yet completed work for the 1996 rate case.

3/ The cash amount for total revenues and reimbursements for FY 1995 includes the receipt of $156 million from the Non-Federal participants in the Third AC Transmission line. The accrual amounts for FY 1996-2000 include 1/46th of this amount, $3.5 million per year, to reflect how these funds will be included in financial statements.

4/ BPA's FY 1997 budget has been prepared in accordance with the Budget Enforcement Act (BEA) of 1990. Under this Act all BPA budget estimates are treated as mandatory and are not subject to the discretionary caps included in the BEA. These estimates support activities which are legally separate from discretionary activities and accounts. Thus, any changes to BPA estimates cannot be used to affect any other budget categories which have their own legal dollar caps. The FY 1997 budget reflects the impact of passage of the Colville Settlement legislation.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION
CURRENT SERVICES
(in millions of dollars)

FRB 06-Mar-96

BP-2

OPERATING EXPENSE OBLIGATIONS/OUTLAYS

		FY 1995 Obligations	FY 1995 Outlays	FY 1996 Obligations	FY 1996 Outlays	FY 1997 Obligations	FY 1997 Outlays	FY 1998 Obligations	FY 1999 Obligations	FY 2000 Obligations	FY 2001 Obligations
1	Residential Exchange	1,007	1,007	976	976	1,140	1,140	1,060	1,080	1,033	1,139
2	Marketing, Conservation & Production	1,037	1,139	1,197	1,197	1,105	1,105	1,141	1,200	1,208	1,198
3	Transmission Services	139	156	148	148	146	146	151	157	163	170
4	Environment\Fish & Wildlife	36	60	105	105	107	107	99	97	96	108
5	Associated Project Costs	126	136	136	136	155	155	157	178	190	223
6	Interest	398	396	379	379	394	394	405	410	408	426
7	Planning Council	8	8	8	8	8	8	9	9	9	10
8	**OBLIGATIONS/OUTLAYS**	**2,751**	**2,902**	**2,949**	**2,949**	**3,055**	**3,055**	**3,022**	**3,131**	**3,107**	**3,274**
9	TOTAL REIMBURSABLE OBLIGATIONS/OUTLAYS	41	41	20	20	18	18	16	17	14	18

CAPITAL INVESTMENT OBLIGATIONS/OUTLAYS

		FY 1995 Obligations	FY 1995 Outlays	FY 1996 Obligations	FY 1996 Outlays	FY 1997 Obligations	FY 1997 Outlays	FY 1998 Obligations	FY 1999 Obligations	FY 2000 Obligations	FY 2001 Obligations
10	Marketing, Conservation & Production	59	74	105	104	54	75	52	41	31	13
11	Transmission Services	150	154	165	175	163	169	208	200	262	308
12	Associated Projects	18	25	31	31	18	18	13	36	54	56
13	Environment\Fish & Wildlife	43	49	41	41	40	40	39	34	35	35
14	Capital Equipment	17	17	13	13	12	12	12	13	13	14
15	Capitalized Bond Premium	0	0	0	0	0	0	0	0	0	0
16	**TOTAL CAPITAL INVESTMENTS**	**287**	**319**	**355**	**364**	**287**	**314**	**324**	**324**	**395**	**426**
17	**BORROWING AUTHORITY TO FINANCE CAPITAL OBLIGATIONS 1/**	**287**		**355**		**287**		**324**	**324**	**395**	**426**
18	**BORROWING AUTHORITY TO FINANCE OTHER OBLIGATIONS 2/**	**0**		**(141)**		**(16)**		**(68)**	**(108)**	**(157)**	**(36)**
19	**TOTAL BORROWING AUTHORITY**	**287**		**214**		**271**		**256**	**216**	**238**	**390**

1/ BPA's FY 1997 budget has been prepared in accordance with the Budget Enforcement Act (BEA) of 1990. Under this Act all BPA budget estimates are treated as mandatory and are not subject to the discretionary caps included in the BEA. These estimates support activities which are legally separate from discretionary activities and accounts. Thus, any changes to BPA estimates cannot be used to affect any other budget categories which have their own legal dollar caps. Because BPA operates within existing legislative authority, BPA is not subject to a Budget Enforcement "pay-as-you-go" test regarding its revision of funding estimates.

2/ Borrowing Authority to Finance Other Obligations represents the use of (positive), or building up of (negative), deferred borrowing. Deferred borrowing is created when Bonneville uses cash from revenues to liquidate capital obligations in lieu of borrowing. This temporary use of cash on-hand instead of borrowed funds creates the ability in future years to borrow money, when fiscally prudent, to liquidate revenue funded activities. The amount on this line, under the title "Borrowing Authority to Finance Other Obligations" represents the annual use, or creation of deferred borrowing. OMB has requested that Bonneville show this deferred borrowing as resource carried forward from year to year in the manner displayed here. It is important to note that the borrowing authority amount on line 17 "Borrowing Authority to Finance Capital Obligations" is the amount which is tracked by the Congressional Committees.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUMITTAL
BONNEVILLE POWER ADMINISTRATION
Accrued Expenditures
(in thousands of dollars)

FRB 06-Mar-96

BP-2a

Operating Expenses

		FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
1	Residential Exchange	976,000	1,140,000	1,060,000	1,080,000	1,033,000	1,139,000
2	Marketing, Conservation & Production	1,197,000	1,105,000	1,141,000	1,200,000	1,208,000	1,198,000
3	Transmission Services	148,000	146,000	151,000	157,000	163,000	170,000
4	Environment\Fish & Wildlife	105,000	107,000	99,000	97,000	96,000	108,000
5	Associated Project Costs	136,000	139,000	157,000	178,000	190,000	223,000
6	Interest	379,000	394,000	405,000	410,000	408,000	426,000
7	Planning Council	8,000	8,000	9,000	9,000	9,000	10,000
8	Reimburseable	20,000	18,000	16,000	17,000	14,000	18,000
9	**TOTAL Accrued Expenditures**	2,969,000	3,057,000	3,038,000	3,148,000	3,121,000	3,232,000

Capital Investments

		FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
10	Marketing, Conservation & Production	105,000	75,000	52,000	41,000	31,000	13,000
11	Transmission Services	175,000	169,000	208,000	200,000	262,000	308,000
12	Associated Projects	31,000	18,000	13,000	36,000	54,000	56,000
13	Environment\Fish & Wildlife	41,000	40,000	39,000	34,000	35,000	35,000
14	Capital Equipment	13,000	12,000	12,000	13,000	13,000	14,000
15	Capitalized Bond Premium						
16	**TOTAL Accrued Expenditures**	365,000	314,000	324,000	324,000	395,000	426,000

1/ This table summarizes the projected accrued expenditures as reflected in Bonneville's 1996 Supplemental Rate Proposal, and the performance summaries that follow. Managing to and reflecting of these accrued expenditures allows BPA to better control funds, reduce costs, and focus on results that positively impact BPA's financial condition, and probability of repaying the U.S. Treasury.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION
CURRENT SERVICES
(in millions of dollars)

BP-3

	CAPITAL TRANSFERS	FY 1995 Payments	FY 1996 Payments	FY 1997 Payments	FY 1998 Payments	FY 1999 Payments	FY 2000 Payments	FY 2001 Payments
	Amortization:							
20	BPA Bonds	222	259	257	241	149	149	88
21	Third AC - Non-Federal Participant Payment 1/	156	0	0	0	0	0	0
22	BPA Appropriations	0	3	0	37	45	25	56
23	Corps Appropriations	98	5	6	0	5	45	35
24	**TOTAL CAPITAL TRANSFERS**	**476**	**267**	**263**	**278**	**199**	**219**	**179**
			STAFFING					
25	**FULL-TIME EQUIVALENT EMP. (FTE) 2/**	**3,313**	**3,272**	**3,272**	**3,272**	**3,272**	**3,272**	**3,272**

1/ Included a $156 million capital transfer in FY 1995 representing an unscheduled amortization payment connected with receipts from sale of capacity to non-Federal participants in the AC Intertie transmission lines.
2/ FTE levels for FY 1996-2001 reflect Department of Energy staffing budget.

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SUMMARY OF CHANGES IN CAPITAL COMMITMENTS AND BORROWING AUTHORITY, FY 1996 TO FY 1997

(in thousands of dollars)

FY 1996 New Borrowing Authority 1/	377,000
Recent cost reductions	(22,000)
FY 1996 Capital Investments (current estimate)	355,000
Marketing, Conservation & Production:	(51,000)
- Decreased funding of centrally designed programs resulting in greater sharing of costs with regional utilities	
Transmission Services:	(2,000)
- Increased level of Area and Customer Service and Main Grid activity	
- Decreased level of Upgrades and Additions, and System Replacements due to cost reduction and efficiency activities	
- Increased AFUDC due to higher level of construction work in progress	
Associated Projects Capital:	(13,000)
- Decreased funding levels due primarily to cost reduction and efficiency activities	
Environment/Fish and Wildlife:	(1,000)
- Continue funding at approximately same levels	
Capital Equipment:	(1,000)
- Decreased level of funding due to cost reduction and efficiency activities	
FY 1997 New Capital Commitments	287,000
FY 1997 New Borrowing Authority	287,000

1/ This estimate is consistent with the FY 1996 Appropriations Act

BONNEVILLE POWER ADMINISTRATION

PROGRAM MISSION

The Bonneville Power Administration (Bonneville) provides electric power, transmission and energy services throughout the Pacific Northwest. Created in 1937 to market and transmit the power produced by the Bonneville Dam on the Columbia River, Congress has since then directed Bonneville to sell at wholesale the power produced at a total of 30 Federal dams, and to acquire non-federal power and conservation resources sufficient to meet the needs of Bonneville's customer utilities. Bonneville serves a 300,000 square mile area including Oregon, Washington, Idaho, western Montana, and parts of northern California, Nevada, Utah and Wyoming.

The Federal Columbia River Transmission Act of 1974 placed Bonneville under the provisions of the Government Corporation Act and allows Bonneville to use its revenue from electric ratepayers to fund all programs directly, and sell bonds to the U.S. Treasury to finance the region's high voltage transmission requirements. The Pacific Northwest Power Act of 1980 expanded Bonneville's utility obligations and responsibilities to meet requesting utility loads, encourage conservation and develop renewable resources, and to protect, mitigate and enhance the fish and wildlife of the Columbia River and its tributaries. In support of these responsibilities, Bonneville's borrowing authority was expanded to allow the sale of bonds to finance conservation and other resources and carry out fish and wildlife capital improvements. This Act also required regional energy plans and programs and created the Northwest Power Planning Council.

Bonneville receives no annual appropriations from Congress. Under the Transmission Act, Bonneville funds the expense portion of its budget and repays the Federal investment with revenues from electric rates. Bonneville's revenues fluctuate primarily in response to market prices for fuels and commodity metals and to weather conditions affecting stream flows in the Columbia River System. Bonneville is authorized to sell bonds to the Treasury up to a cumulative outstanding total of $3.75 billion. Through FY 1995, Bonneville has returned approximately $12 billion to the U.S. Treasury in interest, amortization, and repayment of Federal power generation, operation, maintenance, and construction costs. FY 1995 marked the twelfth consecutive year Bonneville has made its Treasury payment in full and on time. During FY 1997, Bonneville plans to pay the Treasury in full its annual scheduled amortization payment which will be based on the 1996 Rate Case. Currently, the FY 1997 Treasury payment is estimated to be $851 million, of which $263 million is to repay principal. This estimate has been updated as part of Bonneville's 1996 Supplemental Rate Proposal and will be finalized when the rates are filed with the Federal Energy Regulatory Commission. The new rates are expected to be in place by the beginning of FY 1997.

This budget incorporates the budget reductions BPA has made to remain competitive in the electric utility industry in the Pacific Northwest as the industry restructures itself. These spending levels were used to develop the revenue requirement for the 1996 Supplemental Rate Proposal. These estimates are still subject to change due to several reasons including: 1) continued review of spending levels by Bonneville, as well as its customers and constituents, as part of

the rate case proceedings, 2) potential termination costs associated with contracts that Bonneville is closing out, and 3) current ongoing activities concerning several of the items discussed below under Significant Accomplishments and Program Shifts.

The spending estimates that appear at the budget line item of detail in the following Performance Summaries are accrued expenditures. Budget obligations continue to be shown at the program level, however. Managing to and reporting of accrued expenditures allows Bonneville to better control funds, reduce costs, and focus on results that positively impact Bonneville's financial condition and probability of repaying the U.S. Treasury. Bonneville's total forecast obligations that appear on the Program Funding Profile (Lead Table), BP-1 Summary, BP-2 Table and Program and Financing Summary were estimated based on Bonneville's forecast of accrued expenditures.

The GOAL of Bonneville is:

- To provide electric power, transmission, and energy services in increasingly competitive markets.
- To support the achievement of BPA's responsibilities for fish and wildlife, energy conservation, renewable resources, and low-cost power for the region.
- To remain a low-cost producer and a creative and flexible marketer in the region, helping to ensure the economical and environmental health of the Pacific Northwest.
- To value individual diversity, entrepreneurial spirit, personal responsibility and the public service of Bonneville employees.

OBJECTIVES and PERFORMANCE MEASURES:

The objectives and performance measures listed here address the key areas of Bonneville's business and are based on the measures to be included in the FY 1995 Annual Management report as well as Bonneville's 1995 Business Plan.

Objective 1. Achieve high and continually improving customer satisfaction:
Performance Measure 1a. Improving customer overall satisfaction targets as measured by customer surveys.
Status: Conducted two customer surveys, one in FY 1993 and one in FY 1995.

Objective 2. Increase the value of our business and share the expanded benefits.
Performance Measure 2a. Net revenues for BPA as measured by quarterly financial statements.
Status: Historical data through FY 1995.
Performance Measure 2b. Business line margins as measured by business line reports.
Status: Comparison of targets and actuals for FY 1995.
Performance Measure 2c. Number of megawatts of conservation acquired as reported by utilities.
Status: Historical data through FY 1995.
Performance Measure 2d. Improving constituent overall satisfaction as measured by constituent surveys.
Status: Conducted first constituent survey in FY 1995.

Objective 3. Be the lowest-cost producer of power and transmission services.
Performance Measure 3a. Overall average system cost as compared to others in the region.

Status: Target and actual BPA priority firm (PF) rate for FY 1995 and target for 1996 and beyond.

Objective 4. Achieve and maintain financial integrity.
Performance Measure 4a. Progress toward targeted financial reserves.
Status: Combination of historical data and target through FY 1995.

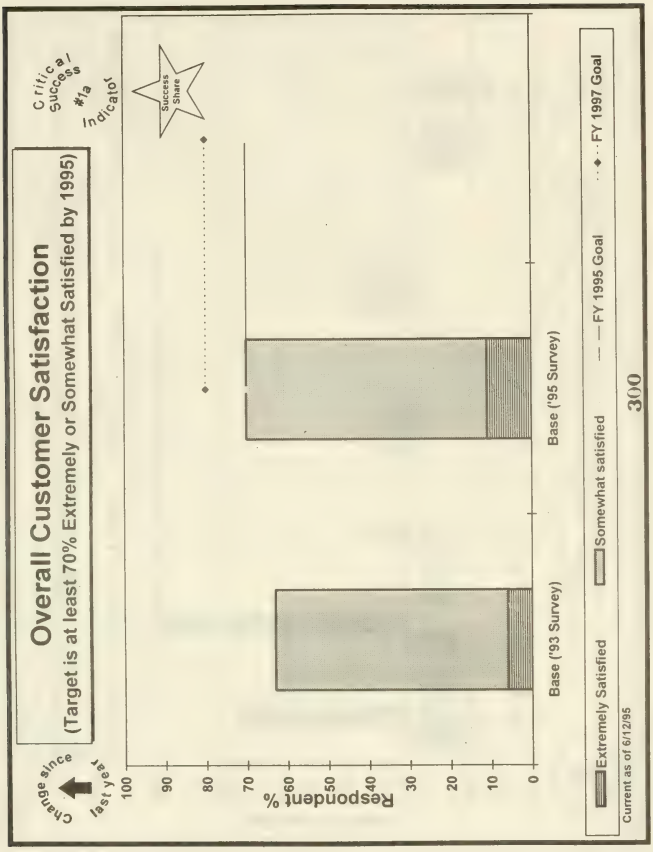
Objective 5. Keep the power system safe and reliable.
Performance Measure 5a. Recordable injury rate.
Status: Combination of historical data and target through FY 1995.
Performance Measure 5b. Beat competitive benchmark for system average interruption frequency index (SAIFI).
Status: Combination of historical data and target through FY 1995.
Objective 6. Invest in environmental results to sustain competitiveness.
Performance Measure 6a. Fish and wildlife program results for anadromous fish, resident fish, wildlife, and program costs.
Status: Developing methodologies and targets.

Objective 7. Transform Bonneville into a high-performing, business-oriented organization.
Performance Measure 7a. Cultural results showing employees owning the business, developing mutually beneficial customer/client relationships, and striving for workforce excellence and a work environment that supports everyone's success.
Status: Conducted two cultural audits of employees, one in FY 1993 and one in FY 1995.

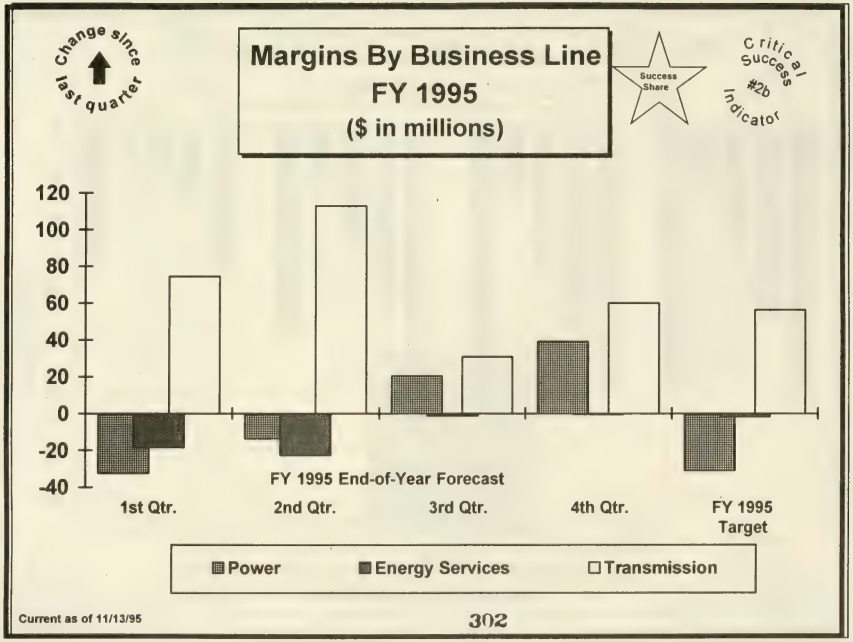
These objectives present a long-term focus which is designed to position Bonneville for the future. As BPA continues to respond to evolving competitive market conditions, both the objectives and performance measures are subject to change in order to maintain their relevance to management decisions.

PERFORMANCE MEASURES:

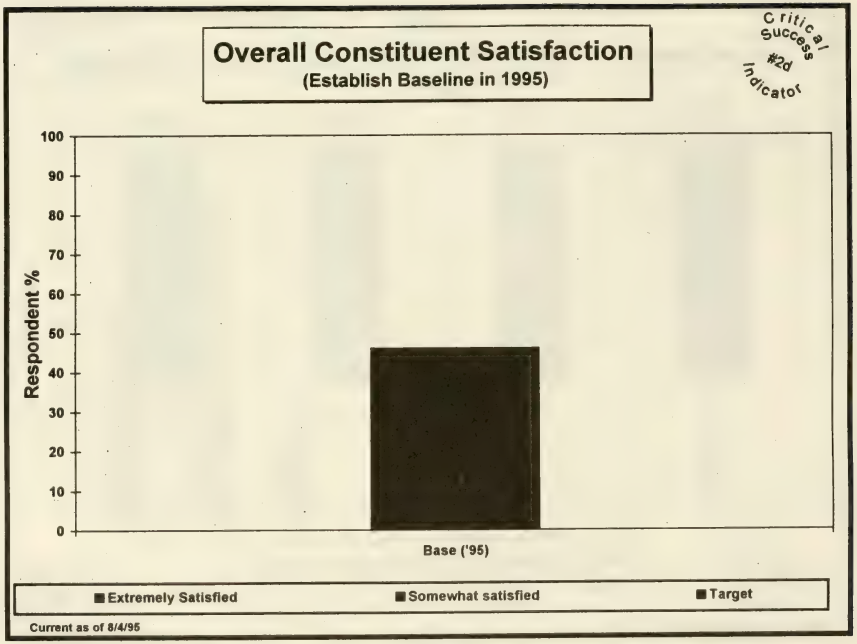
The following graphs illustrate the Performance Measures that currently have meaningful historical data.

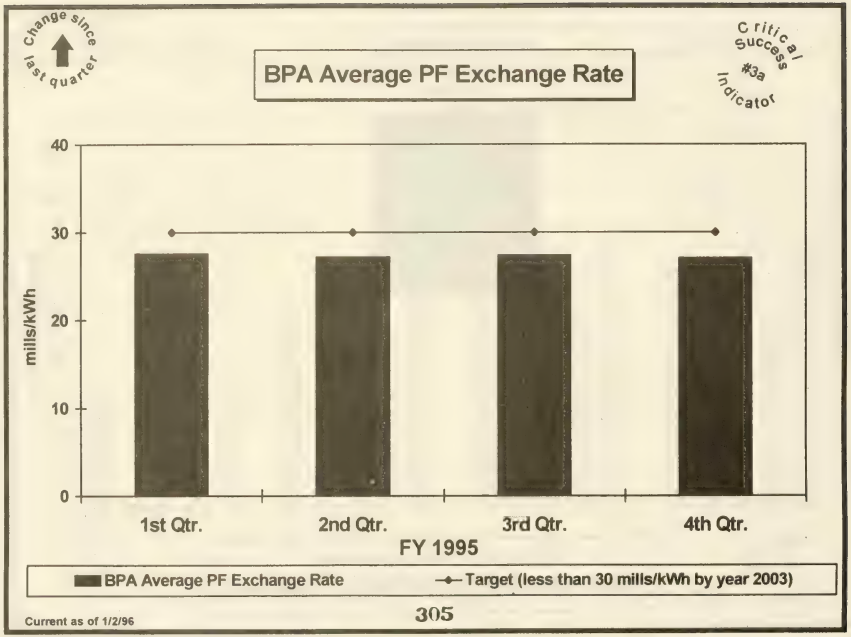

Overall Customer Satisfaction
(Target is at least 70% Extremely or Somewhat Satisfied by 1995)
Critical Success #1a Indicator
Change since last year
Success Share
Respondent %
100
90
80
70
60
50
40
30
20
10
0
Base ('93 Survey)
Base ('95 Survey)
Extremely Satisfied
Somewhat satisfied
FY 1995 Goal
FY 1997 Goal
Current as of 6/12/95
300

Net Revenues for BPA
Critical Success #2a Indicator
Success Share
Change since last Quarter
(Millions of Dollars)
200
100
0
-100
-200
-300
-400
-500
FY 1992
FY 1993
FY 1994
1st Qtr.
FY 1995
2nd Qtr.
3rd Qtr.
4th Qtr.
FY 1995
Planned -1991 and 1993 Rate Case
Actuals
Quarterly Year-end Projection
Current as of 12/29/95
301


Change since last quarter
Margins By Business Line
FY 1995
($ in millions)
Success Share
Critical Success #2b Indicator
120
100
80
60
40
20
0
-20
-40
FY 1995 End-of-Year Forecast
1st Qtr.
2nd Qtr.
3rd Qtr.
4th Qtr.
FY 1995 Target
Power
Energy Services
Transmission
Current as of 11/13/95
302

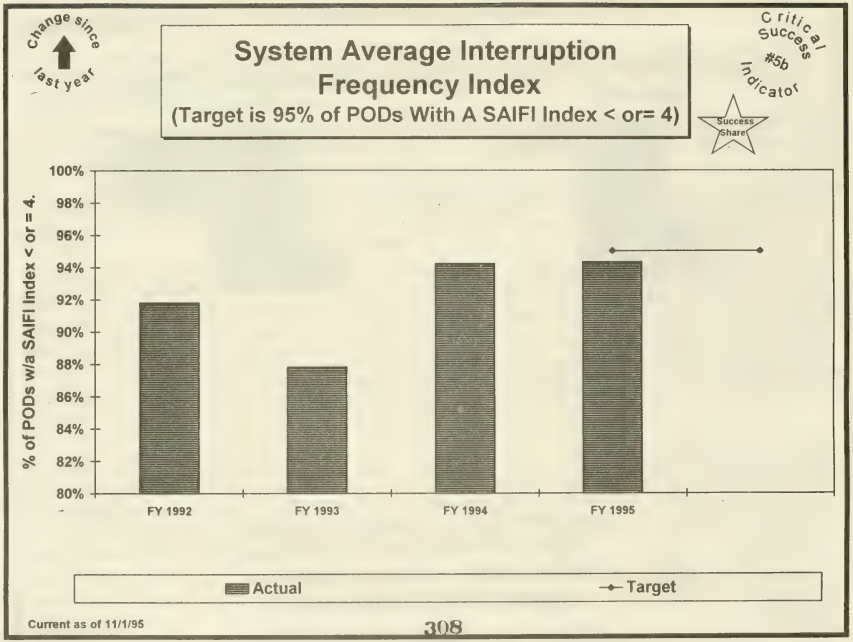
Change since last year
=
Conservation Achieved
Target is 51 aMW for FY 1994 and 49 aMW for FY 1995
Critical success Indicator #2c
Note: Savings reported within each fiscal year are based on savings assumptions established at the beginning of that fiscal year.
Megawatts
70
60
50
40
30
20
10
0
Target 92
Half Year
Full Year
FY 1992
Target 93
Half Year
Full Year
FY 1993
Target 94
Half Year
Full Year
FY 1994
Target 95
Half Year
Full Year
FY 1995
Success Share
Targets
Actuals
Forecasts
Current as of 11/9/95

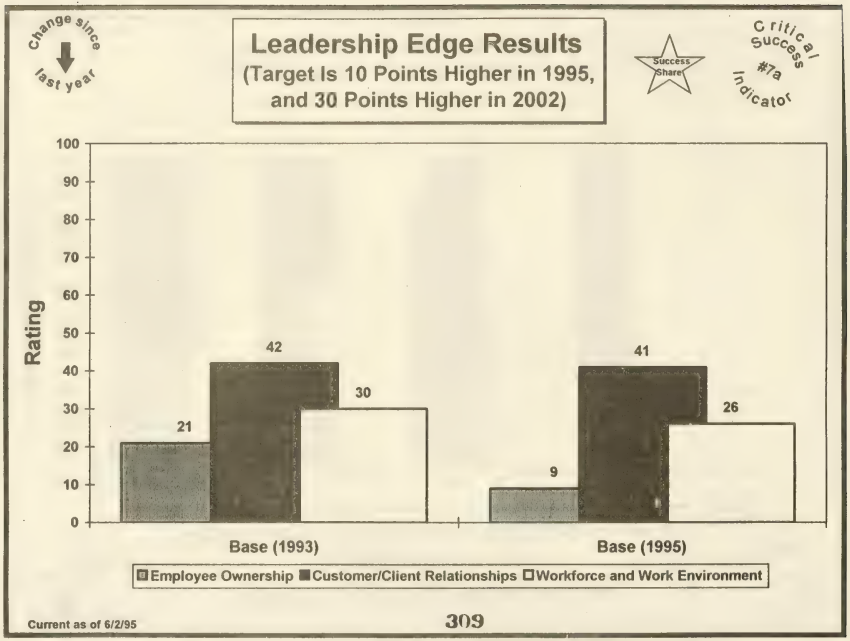

Overall Constituent Satisfaction
(Establish Baseline in 1995)
Critical Success #2d Indicator
Respondent %
100
90
80
70
60
50
40
30
20
10
0
Base ('95)
Extremely Satisfied
Somewhat satisfied
Target
Current as of 8/4/95


Change since last quarter
BPA Average PF Exchange Rate
Critical Success #3a Indicator
40
30
20
10
0
mills/kWh
1st Qtr.
2nd Qtr.
3rd Qtr.
4th Qtr.
FY 1995
BPA Average PF Exchange Rate
Target (less than 30 mills/kWh by year 2003)
Current as of 1/2/96

Change since last quarter
Financial Reserves
Success Share
Critical success #4a Indicator
Millions of Dollars
1200
1000
800
600
400
200
0
FY 1992
FY 1993
FY 1994
1st Qtr.
2nd Qtr.
3rd Qtr.
4th Qtr.
Year End
FY 1995
EOY Actuals
Planned from 91 and 93 Rate Cases
FY 1996 EOY Quarterly Estimate
Minimum Goal
Current as of 11/9/95
306

Change since last year
Recordable Injury Frequency Rate
Success Share
Critical success #5a Indicator
Recordable Injuries/200k Staff Hours
6
5
4
3
2
1
0
1992
1993
1994
1995
National Average
BPA - Actual
BPA Target (maximum)
Current as of 11/1/95
307


Change since last year
System Average Interruption Frequency Index
(Target is 95% of PODs With A SAIFI Index < or= 4)
Critical Success #5b Indicator
Success Share
% of PODs w/a SAIFI Index < or = 4.
100%
98%
96%
94%
92%
90%
88%
86%
84%
82%
80%
FY 1992
FY 1993
FY 1994
FY 1995
Actual
Target
Current as of 11/1/95


Change since last year
Leadership Edge Results
(Target Is 10 Points Higher in 1995, and 30 Points Higher in 2002)
Success Share
Critical Success #7a Indicator
Rating
100
90
80
70
60
50
40
30
20
10
0
21
42
30
9
41
26
Base (1993)
Base (1995)
Employee Ownership
Customer/Client Relationships
Workforce and Work Environment
Current as of 6/2/95
309

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS.

Bonneville is currently conducting the formal process of its 1996 rate case and has included updated interest and amortization estimates in its FY 1997 Congressional Budget submittal from its 1996 Supplemental Rate Proposal in December 1995. Bonneville has put forward in this Supplemental Rate Proposal assumed revenue financing of a portion of its capital investments, in an effort to reduce its reliance on debt financing. Bonneville expects the new rates to be in effect at the beginning of FY 1997.

Bonneville faces unprecedented challenges in continuing its service to the Pacific Northwest. Market prices falling to near parity with Bonneville's rates have brought new competition, while at the same time the costs of Bonneville's commitment to rebuild salmon runs have risen sharply. These forces have converged to reshape Bonneville's marketing, planning , and organization.

BPA is seeking to be competitive, the supplier of choice to its customers, and responsive to its regional responsibilities in a time of change and instability in the region's economy and its electric utility industry. Stability is critical now as the Pacific Northwest embarks on a comprehensive Regional Review of its regional electric system, a system in which BPA is a major player. BPA's stability will enable the region to make reasoned decisions rather than crisis-driven decisions.

Bonneville is committed to succeeding in the new competitive market. A new organizational structure focuses on meeting customers' needs. Cost management has become an essential tool for maintaining Bonneville's competitiveness. All spending and development plans have been closely reviewed, and a number of planned projects have been postponed or canceled. Bonneville is reducing its human resources staffing, Federal full-time-equivalent employment and contract support services employment equivalent, by nearly 20 percent from levels of mid-Fiscal Year 1994. For FTE, BPA's March 1994 baseline for FY 1994 was the number of filled positions (permanent and temporary, full and part-time, including student programs charged against FTE allocations) whose incumbents were actually on board and charging against BPA FTE. BPA identified this as baselines for both employment and FTE. The contractor FTE baseline was the dollar-derived FTE equivalent of actual FY 1994 support services and related contract costs. In addition, Bonneville has explored options to reduce its level of debt financing in order to both delay exhaustion of borrowing authority caps and improve Bonneville's debt-equity position. The options for implementation include 1) further reductions in capital spending through application of a capital budgeting process, 2) revenue financing of roughly $30 million of transmission capital per year, 3) to the extent allowable, shifting costs from the Transmission/Fish & Wildlife authority to the Conservation authority, and 4) using alternative sources of capital, including the use of third-party financing to the greatest extent possible.

As part of its competitiveness efforts, Bonneville released a 1995 Business Plan. The Business Plan is a broad outline of Bonneville's strategy for the future. It combines many of Bonneville's competitiveness initiatives with a focus to enable Bonneville to continue to fulfill its public mission in the changing utility market. Broad goals and strategic business objectives for transforming all aspects of Bonneville's enterprises are identified in the Plan and are included under the Objectives and Performance Measures section of this budget document as well. The Business Plan sets policy direction for Bonneville's pricing, power marketing, transmission, conservation, and fish and wildlife activities. The Business Plan is supported by a Business Plan Environmental Impact Statement issued in June 1995. Included in the Business Plan are objectives and critical success indicators used to develop the performance indicators included in this document and in the FY 1995 Annual Management Report.

One of the most pressing environmental challenges facing the Northwest is the serious decline in Columbia Basin wild salmon stocks. The decline in these species is evidenced by listings of the Snake River Sockeye Salmon, Snake River Chinook Salmon, Redfish Lake Sockeye Salmon, and the Kootenai River

White Sturgeon as endangered under the Endangered Species Act. Since 1980, Bonneville ratepayers have spent over $1 billion to mitigate fish and wildlife impacts associated with the construction and operation of the Federal hydroelectric projects on the Columbia River System. At the end of this mission statement is a fish and wildlife investments crosscut presentation of the history and forecast of BPA's fiscal and economic support of fish and wildlife support. In less than five years, Bonneville's annual costs for fish and wildlife, including foregone revenues, have risen from $150 million to about $400 million a year, including capital expenditures, purchase power and lost revenues. In addition, significant Endangered Species Act required changes in the operation of the hydropower system have reduced operating flexibility and further curtailed revenues. In response to these events, Bonneville has reinvented its fish and wildlife program to emphasize greater results, cost-effectiveness, and efficiency. In addition, an amendment was included in the 1996 Senate Energy and Water Development Appropriations relating to Bonneville's and the region's salmon recovery efforts. Included in the legislation is a provision that the Pacific Northwest Planning Council conduct a review and report to Congress by May 1996, recommending ways to improve effective regional control over efforts to conserve and enhance anadromous and resident fish and wildlife within the Federal Columbia River Power System.

Related to this, in March 1995, the Administration completed an agreement with U.S Senators Mark Hatfield, Patty Murray, and Max Bacus and other members of the Northwest Congressional Delegation. This agreement recognized BPA's use of Section 4(h)(10)(C) of the Northwest Power act to apply credits to BPA's Treasury payment for previous BPA expenditures attributable to non-power hydro project costs collected through BPA power rates. Under the agreement, BPA is able to access historical credits, and the availability of credits is extended for BPA's power purchase costs relating to its fish and wildlife programs in Fiscal Years 1997-2001.

In October 1995, the OMB in a letter to Congress, reiterated and extended the Administration's commitments made earlier, and described a "program" for the period FY 1996-2001 intended to provide greater financial certainty to BPA and its customers for fish and wildlife obligations, while ensuring stable funding at levels needed to implement the 1995 Biological Opinion of the National Marine Fisheries Administration and other objectives under the Endangered Species Act, and the Pacific Northwest Power Planning Council's Fish and Wildlife Program initiatives. A key element of the program is the fish "cap" of BPA's annual fish costs at an average level no more than $435 million per year over the next 6 years assuming average hydro conditions and other related circumstances.

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BPA remains committed to meeting its share of the regional conservation targets set by the Northwest Power Planning Council. BPA is moving to an approach that supports utilities in setting up their own programs. BPA will provide demand-side management products and energy services and "market transformation" activities-- collaborative ventures with regional and national organizations to move the market place toward more energy-efficient products and practices. To the extent that its customers' acquisitions fall short of the Council's regional goals, BPA will develop programs to meet those goals.

More than $3 billion has been invested in Bonneville's high voltage transmission system, providing about eighty percent of the Pacific Northwest region's electric power transmission capacity. Protecting this government investment and meeting new demands due to changing customer load requirements require Bonneville to maintain and reinforce its extensive installed facilities for continued reliable, safe service to its utility and industrial customers.

Bonneville is adopting a reliability-centered maintenance (RCM) philosophy. This philosophy is a significant departure from traditional equipment-centered practice and will improve the transmission system's reliability while substantially reducing preventive maintenance program costs. Planned system replacements meet the objectives of (1) replacing high-risk, obsolete, and maintenance-intensive facilities and equipment and (2) minimizing occurrences of catastrophic equipment failure at critical sites. This is cost- effectively accomplished through system maintenance organizations' examining transmission components, including component maintenance records, and recommending replacement at or near the end of the component's expected useful life. This approach to component replacement will be managed to the extent that system outage frequencies/durations continue to be within acceptable limits.

All capital improvements--whether replacements, upgrades, or additions to reinforce specific portions of the transmission system--are planned under a new restrictive criteria, with each facility evaluated on expected financial, reliability, and safety benefits before being authorized.

Bonneville Power Administration and the U. S. Army Corps of Engineers, as the U.S. Entity under the Columbia River Treaty, were involved in negotiations with the Canadian Entity (BC Hydro) and the British Columbia government to find a mutually beneficial arrangement to deliver Canadian Entitlement power to Canada, beginning in 1998. Last September, representatives of the Canadian Entity, the BC government and the U.S. Entity signed a non-binding memorandum that laid out principles for detailed negotiations. However, due to the rapidly changing economic conditions in the utility industry, the U. S. Entity decided to withdraw from these negotiations based on the need to protect the economic interests of its customer utilities and the regional ratepayers. The U. S. Entity remains open to the possibility of restarting negotiations at a future date to attempt to reach a mutually satisfactory agreement for delivery of Canadian Entitlement power. Budget estimates, starting in FY 1996, and necessary authorizing language in the Appropriation Language sheet are included for the Eastern Canadian Intertie (Grand Coulee Dam to the Canadian Border 'Oliver') facility. This facility will provide transmission facilities that are required for returning the Canadian Entitlement power to BC Hydro, under the 1964 Columbia River Treaty, and will increase power transfer capability between the U.S. and Canada.

BONNEVILLE POWER ADMINISTRATION — **TABLE 1**

FISH AND WILDLIFE INVESTMENTS CROSSCUT

($ in Millions)

SB31D1 WORKING DRAFT

UPDATED 3/11/88

	First Funded By:	FY 1978-1980	FY 1981	FY 1982	FY 1983	FY 1984	CUMULATIVE TOTAL FY 1978 - 1984
CAPITAL INVESTMENTS							
BPA FISH AND WILDLIFE 1/	BPA	0	0	0	0	0	0
ASSOCIATED PROJECTS (FEDERAL HYDRO) 2/	COE	30.0	17.9	61.7	55.1	9.0	173.7
TOTAL CAPITAL INVESTMENTS		30.0	17.9	61.7	55.1	9.0	173.7
PROGRAM OPERATING EXPENSES							
BPA DIRECT FISH AND WILDLIFE PROGRAM 1/							
NON-E S A ACTIVITIES	BPA	2.3	2.3	4.6	9.1	19.6	37.9
E S A ACTIVITIES	BPA	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL		2.3	2.3	4.6	9.1	19.6	37.9
BPA POWER PURCH. FOR FISH ENHANCEMENT (NET) THRU FY 1993							
EXISTING WATER BUDGET 3/	BPA	0.0	0.0	0.0	0.0	12.0	12.0
E S A IMPLEMENTATION 4/	BPA	0.0	0.0	0.0	0.0	0.0	0.0
SUB TOTAL		0.0	0.0	0.0	0.0	12.0	12.0
BPA POWER PURCH. FOR FISH ENHANCEMENT (NET) EFF. FY 1994 5/							
U. COLUMBIA RIVER WATER BUDGET	BPA	--	--	--	--	--	--
SPILL FOR JUVENILE/ADULT PASSAGE 6/	BPA	--	--	--	--	--	--
FLOW AUGMENTATION 7/	BPA	--	--	--	--	--	--
REDUCED FOREBAY LEVELS	BPA	--	--	--	--	--	--
ESA - NMFS FUND (ADD. SPILL FOR JUVE PASS.)	BPA	--	--	--	--	--	--
SUB TOTAL							
REIMBURSABLE (ASSOC. PROJECTS - FEDERAL HYDRO)							
O & M LOWER SNAKE RIVER HATCHERIES	USFWS	0.0	0.5	1.0	2.2	3.6	7.3
O & M CORPS (w/bypass eff. FY 1992)	COE	15.0	5.4	7.6	9.1	10.0	47.1
O & M BUREAU (hatchery eff. FY 1992)	BOR	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (NW POWER PLANNING COUNCIL)	BPA	0.0	0.2	2.9	2.9	2.4	8.4
SUBTOTAL		15.0	6.1	11.5	14.2	16.0	62.8
TOTAL PROGRAM OPERATING EXPENSES		17.3	8.4	16.1	23.3	47.6	112.7
PROGRAM RELATED FIXED EXPENSES 8/							
INTEREST EXPENSE	BPA	15.0	6.4	9.2	12.1	12.7	55.4
AMORTIZATION EXPENSE	BPA	0.0	0.0	0.0	0.0	0.0	0.0
DEPRECIATION EXPENSE	BPA	9.0	2.4	3.2	3.8	3.9	22.3
TOTAL PROGRAM FIXED EXPENSES		24	8.8	12.4	15.9	16.6	77.7
GRAND TOTAL PROGRAM EXPENSES		41.3	17.2	28.5	39.2	64.2	190.4
FOREGONE REVENUES THRU FY 1993							
SPILL (at Federal dams)	BPA	0.0	3.0	14.0	1.0	8.0	26.0
ESA Drawdown - Minimum Operating Pool 10/	BPA	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	3.0	14.0	1.0	8.0	26.0
FOREGONE REVENUES FY 1994 5/							
U. COLUMBIA RIVER WATER BUDGET	BPA	--	--	--	--	--	--
SPILL FOR JUVENILE PASSAGE 6/	BPA	--	--	--	--	--	--
FLOW AUGMENTATION	BPA	--	--	--	--	--	--
REDUCED FOREBAY LEVELS 10/	BPA	--	--	--	--	--	--
ESA - NMFS FUND (ADD. SPILL FOR JUVE PASS.)	BPA	--	--	--	--	--	--
SUBTOTAL							
TOTAL - PROGAM EXPENSES & FOREGONE REVENUES		41.3	20.2	42.5	40.2	72.2	216.4

THE ACCOMPANYING NOTES ARE AN INTEGRAL PART OF THIS TABLE.

BONNEVILLE POWER ADMINISTRATION — **TABLE 2**

FISH AND WILDLIFE INVESTMENTS CROSSCUT — CUMULATIVE TOTAL FY 1995 - 1990

($ in Millions)

6B31D1 WORKING DRAFT

UPDATED 3/11/96

	First Funded By:	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 1990	
CAPITAL INVESTMENTS								
BPA FISH AND WILDLIFE 1/	BPA	10.2	8	4.7	7.7	8.3	16.2	55.1
ASSOCIATED PROJECTS (FEDERAL HYDRO) 2/	COE	46.4	9.1	78.6	7.6	5.3	4.5	151.5
TOTAL CAPITAL INVESTMENTS		56.6	17.1	83.3	15.3	13.6	20.7	206.6
PROGRAM OPERATING EXPENSES								
BPA DIRCT FISH AND WILDLIFE PROGRAM 1/								
NON-E S A ACTIVITIES	BPA	15.9	19.6	22.2	18.8	23.0	32.6	132.3
E S A ACTIVITIES	BPA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL		15.9	19.6	22.2	18.8	23.0	32.6	132.3
BPA POWER PURCH. FOR FISH ENHANCEMENT (NET) THRU FY 1993								
EXISTING WATER BUDGET 3/	BPA	17.0	74.0	11.0	40.0	40.0	40.0	222.0
E S A IMPLEMENTATION 4/	BPA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUB TOTAL		17.0	74.0	11.0	40.0	40.0	40.0	222.0
BPA POWER PURCH. FOR FISH ENHANCEMENT (NET) EFF. FY 1994 5/								
U. COLUMBIA RIVER WATER BUDGET	BPA	—	—	—	—	—	—	—
SPILL FOR JUVENILE/ADULT PASSAGE 6/	BPA	—	—	—	—	—	—	—
FLOW AUGMENTATION 7/	BPA	—	—	—	—	—	—	—
REDUCED FOREBAY LEVELS	BPA	—	—	—	—	—	—	—
ESA - NMFS FUND (ADD. SPILL FOR JUVE PASS.)	BPA	—	—	—	—	—	—	—
SUB TOTAL								
REIMBURSABLE (ASSOC. PROJECTS - FEDERAL HYDRO)								
O & M LOWER SNAKE RIVER HATCHERIES	USFWS	5.4	4.9	5.8	5.1	7.6	8.3	37.1
O & M CORPS (w/bypass eff. FY 1992)	COE	11.4	15.8	20.7	10.5	12.3	11.5	82.2
O & M BUREAU (hatchery eff. FY 1992)	BOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER (NW POWER PLANNING COUNCIL)	BPA	3.1	3.0	3.2	3.4	3.7	3.6	20.0
SUBTOTAL		19.9	23.7	29.7	19.0	23.6	23.4	139.3
TOTAL PROGRAM OPERATING EXPENSES		52.8	117.3	62.9	77.8	86.6	96.2	493.6
PROGRAM RELATED FIXED EXPENSES 8/								
INTEREST EXPENSE	BPA	15.3	17.1	22.2	24.3	24.5	26.0	129.4
AMORTIZATION EXPENSE	BPA	0.1	0.5	0.8	1.1	1.7	2.4	6.6
DEPRECIATION EXPENSE	BPA	4.3	4.5	5.5	5.6	5.7	5.9	31.5
TOTAL PROGRAM FIXED EXPENSES		19.7	22.1	28.5	31	31.9	34.3	167.5
GRAND TOTAL PROGRAM EXPENSES		72.5	139.4	91.4	108.8	118.5	130.5	661.1
FOREGONE REVENUES THRU FY 1993								
SPILL (at Federal dams)	BPA	27.0	19.0	9.0	10.0	15.0	15.0	95.0
ESA Drawdown - Minimum Operating Pool 10/	BPA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		27.0	19.0	9.0	10.0	15.0	15.0	95.0
FOREGONE REVENUES FY 1994 5/								
U. COLUMBIA RIVER WATER BUDGET	BPA	—	—	—	—	—	—	—
SPILL FOR JUVENILE PASSAGE 6/	BPA	—	—	—	—	—	—	—
FLOW AUGMENTATION	BPA	—	—	—	—	—	—	—
REDUCED FOREBAY LEVELS 10/	BPA	—	—	—	—	—	—	—
ESA - NMFS FUND (ADD. SPILL FOR JUVE PASS.)	BPA	—	—	—	—	—	—	—
SUBTOTAL								
TOTAL - PROGAM EXPENSES & FOREGONE REVENUES		99.5	158.4	100.4	118.8	133.5	145.5	756.1

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THE ACCOMPANYING NOTES ARE AN INTEGRAL PART OF THIS TABLE.

BONNEVILLE POWER ADMINISTRATION — **TABLE 3**

FISH AND WILDLIFE INVESTMENTS CROSSCUT ($ in Millions)

SB31D1 WORKING DRAFT
UPDATED 3/11/96

	First Funded By	FY 1991	FY 1992	FY1993	FY 1994	FY 1995	CUMULATIVE TOTAL FY 1991 - 1995	ALL YEARS TOTAL FY 1978 - FY 1995
CAPITAL INVESTMENTS								
BPA FISH AND WILDLIFE 1/	BPA	17.7	11.2	17.3	20.5	32.5	99.2	154.3
ASSOCIATED PROJECTS (FEDERAL HYDRO) 2/	COE	12.0	4.7	162.0	63.0	48.0	289.7	614.9
TOTAL CAPITAL INVESTMENTS		29.7	15.9	179.3	83.5	80.5	388.9	769.2
PROGRAM OPERATING EXPENSES								
BPA DIRCT FISH AND WILDLIFE PROGRAM 1/								
NON-E.S.A. ACTIVITIES	BPA	32.7	59.4	30.0	43.5	47.7	213.3	383.5
E.S.A. ACTIVITIES	BPA	0.3	7.6	19.6	12.4	23.7	63.6	63.6
SUBTOTAL		33.0	67.0	49.6	55.9	71.4	276.9	447.1
BPA POWER PURCH. FOR FISH ENHANCEMENT (NET) THRU FY 1993								
EXISTING WATER BUDGET 3/	BPA	40.0	40.0	40.0	0.0	0.0	120.0	354
E.S.A IMPLEMENTATION 4/	BPA	0.0	19.0	64.0	0.0	0.0	83.0	83
SUB TOTAL		40.0	59.0	104.0	0.0	0.0	203.0	437.0
BPA POWER PURCH. FOR FISH ENHANCEMENT (NET) EFF. FY 1994 5/								
U. COLUMBIA RIVER WATER BUDGET	BPA	---	---	---	40.0	0.0	---	---
SPILL FOR JUVENILE/ADULT PASSAGE 6/	BPA	---	---	---	5.7	0.0	---	---
FLOW AUGMENTATION 7/	BPA	---	---	---	66.0	0.0	---	---
REDUCED FOREBAY LEVELS	BPA	---	---	---	0.0	0.0	---	---
ESA - NMFS FUND (ADD. SPILL FOR JUVE PASS.)	BPA	---	---	---	0.0	0.0	---	---
SUB TOTAL					111.7	114.0	225.7	225.7
REIMBURSABLE (ASSOC. PROJECTS - FEDERAL HYDRO)								
O & M LOWER SNAKE RIVER HATCHERIES	USFWS	8.7	11.2	11.2	12.4	12.7	56.2	100.6
O & M CORPS (w/bypass eff. FY 1992)	COE	11.8	13.3	14.0	16.9	17.8	73.8	203.1
O & M BUREAU (hatchery eff. FY 1992)	BOR	0.0	0.0	1.2	1.3	1.3	3.8	3.8
OTHER (NW POWER PLANNING COUNCIL)	BPA	3.8	3.9	4.1	4.3	4.3	20.4	48.8
SUBTOTAL		24.3	28.4	30.5	34.9	36.1	154.2	356.3
TOTAL PROGRAM OPERATING EXPENSES		97.3	154.4	184.1	202.5	221.5	859.8	1466.1
PROGRAM RELATED FIXED EXPENSES 9/								
INTEREST EXPENSE	BPA	29.2	31.4	40.6	46.1	44.9	147.3	332.1
AMORTIZATION EXPENSE	BPA	3.6	4.8	5.5	6.8	8.5	20.7	27.3
DEPRECIATION EXPENSE	BPA	5.4	5.7	7.5	8.4	10.2	27.0	80.9
TOTAL PROGRAM FIXED EXPENSES		38.2	41.9	53.6	61.3	63.6	195	440.2
GRAND TOTAL PROGRAM EXPENSES		135.5	196.3	237.7	263.8	285.1	1054.8	1906.3
FOREGONE REVENUES THRU FY 1993								
SPILL (at Federal dams)	BPA	15.0	15.0	20.0	---	---	50.0	171
ESA Drawdown - Minimum Operating Pool 10/	BPA	0.0	8.0	25.0	---	---	33.0	33
		15.0	23.0	45.0	0.0	0.0	83.0	204.0
FOREGONE REVENUES FY 1994 5/								
U. COLUMBIA RIVER WATER BUDGET	BPA	---	---	---	0.0	---	---	0.0
SPILL FOR JUVENILE PASSAGE 6/	BPA	---	---	---	32.0	---	---	0.0
FLOW AUGMENTATION	BPA	---	---	---	0.0	---	---	0.0
REDUCED FOREBAY LEVELS 10/	BPA	---	---	---	25.0	---	---	0.0
ESA - NMFS FUND (ADD. SPILL FOR JUVE PASS.)	BPA	---	---	---	5.0	---	---	0.0
SUBTOTAL					62.0	114.0	176.0	176.0
TOTAL - PROGAM EXPENSES & FOREGONE REVENUES		150.5	219.3	282.7	325.8	399.1	1313.8	2286.3

THE ACCOMPANYING NOTES ARE AN INTEGRAL PART OF THIS TABLE.

DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION

Notes - Fish and Wildlife Investments Crosscut Tables
Fiscal Years 1978 through 1995

These notes support three tables that display the Pacific Northwest electric utility ratepayers' investment in fish and wildlife activities within the Columbia River Basin. The tables represent the annual expense for all fish and wildlife investments funded under the Federal Columbia River Power System from a rate making, revenue requirement perspective for the period Fiscal Years (FY) 1978 to 1995. Where audited actuals are not available in this period, best estimates are used. The three tables cover the following periods: Table 1 - FY 1978 through FY 1984, Table 2 - FY 1985 through FY 1990, and Table 3 - FY 1991 through FY 1995.

The costs shown in the tables are based on budget outlays (rather than obligations) for the year shown. The title "Capital Investments," shown at the top of the table, is presented for information only. The annual expense (interest, amortization, and depreciation) associated with these capital investments is shown under the title "Program Related Fixed Expenses."

BPA has a mandate, under the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act), to undertake activities to enhance and support fish and wildlife resources adversely affected by the hydroelectric development of the Columbia River Basin. Under the Act, the Northwest Power Planning Council has established a fish and wildlife program that oversees regional efforts to improve fish and wildlife survival. In conjunction with the Power Planning Council, affected states within the BPA service area, public agencies and Indian tribes, BPA identifies opportunities for effective actions to restore habitat and support fish and wildlife population, and provides funding for those activities.

BPA also has a mandate to implement measures called for under the Endangered Species Act. These measures are part of the Biological Opinions (BO) issued by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) regarding the operations of the Federal Columbia River hydro electric system. The expenses associated with the calendar year (CY) 1995 NMFS BO, addressing measures regarding listed salmon species, and the CY 1995 USFWS BO, addressing measures concerning Kootanai River sturgeon and certain Snake River snails, are reflected in the tables.

BPA funding of the Power Planning Council's Fish and Wildlife Program measures and measures called for under ESA, starting in FY 1992, has increasingly become interrelated and as such, difficult to separately track. As a result, the ESA activities reported under the heading "BPA Direct Fish and Wildlife Program" will no longer be separated in forecasts that extend beyond the budget year.

BPA has a direct program "budget" that is the source of funding the Council's Fish and Wildlife Program and certain ESA measures called for in Biological Opinions. This budget is reflected in these tables under two headings. The first is under "Capital Investments" for fish and wildlife, and the second is under "Program Operating Expenses" for BPA fish and wildlife program. (Because these tables present a "revenue requirement" view of BPA's overall fish and wildlife annual investment, only the fixed expenses of the capital investment are included in the total, as noted above.)

Adjustments for implementation of Section 4(h)(10)(C) of the Northwest Power Act for FY 1994 and FY 1995 are $18.7 million and $56.3 million, respectively, are not reflected in Table 3. The Section 4(h)(10)(C) credits were received against BPA's FY 1994 and FY 1995 Treasury repayment. The credit reflects implementation of Section 4(h)(10)(C) which calls for a portion of BPA's fish and wildlife expenses to be allocated to the other purposes of the Federal projects in the Columbia River Basin. Analysis has determined that the BPA's power share is 73 percent and the taxpayer's share is 27 percent.

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- The tables represent a "revenue requirement" view of BPA's fish and wildlife funding responsibilities except for foregone revenues. All expenses in these tables are paid for by BPA's ratepayers.
- Power purchases and foregone revenues for FY 1994 reflect the measures contained in the CY 1994 National Marine Fisheries Service's (NMFS) Biological Opinion issued March 16, 1994, pursuant to the Endangered Species Act (ESA). Estimates for FY 1995 reflect the average of 50 water year conditions and reflect

the measures contained in the NMFS Biological Opinion issued March 2, 1995, pursuant to ESA. The estimated expenses for FY 1995 are split 50/50 between power purchases and foregone revenues. A detailed accounting of FY 1995 expenses is not complete at this writing but should be included in later updates to Table 3. A format change in the display of the Power Purchases for Fish Enhancement and Foregone Revenues occurs starting in FY 1994 to better reflect NMFS Biological Opinion elements.

Footnotes

1/ Based on outlays. The BPA Program Expenses - ESA for the period FY 1991 through FY 1995 reflect funding specifically mandated by ESA and also those expenditures that, while not specifically mandated, are intended to assist in the recovery of ESA-listed species. Examples of these projects are the squawfish predator control program and the Kootanai River sturgeon program.

2/ Based on plant-in-service as reported by the Corps of Engineers. Through FY 1977, cumulative plant-in-service is estimated at $165 million. A review of these annual estimates is planned and may result in restatements of annual plant-in-service and resulting adjustments in Program Related Fixed Expenses.

3/ Expenses through FY 1991 are for Water Budget only. ESA implementation began in FY 1992 in anticipation of NMFS listings that led to a Biological Opinion that was issued in calendar year (CY) 1993.

4/ In FY 1993, estimates reflect the CY 1993 NMFS Biological Opinion.

5/ The FY 1994 estimates reflect the measures contained in the 1994 NMFS Biological Opinion issued March 16, 1994. Estimates for FY 1995 reflect NMFS Biological Opinion issued March 2, 1995, and are the average of 50 water year conditions. As noted above, accounting is not complete on FY 1995 hydro operations. Effective in FY 1994, these expenses are displayed with greater detail, consistent with categories identified by NMFS in the Biological Opinion.

6/ The estimate for FY 1994 reflects CY 1994 NMFS Biological Opinion spill levels April 10, 1994, through the migration period. It also reflects emergency spill measures implemented by NMFS May 11, 1994 through June 20, 1994.

7/ The estimate for FY 1994 reflects CY 1994 NMFS Biological Opinion flow augmentation volumes plus the additional releases from Dworshak (to elevation 1490 feet) and Upper Columbia reservoirs (1.33 MAF).

8/ Associated Projects costs reflect the power share of the fish and wildlife O&M reimbursed to the Treasury. The amounts shown are based on estimates of the agency, adjusted for actuals by BPA where data is available. (Prior versions of these tables included a line representing estimates for "ESA" related expenses for FY's 1992 and 1993. This sub-category has been removed because expenses are not separately reported to Bonneville, although ESA expenses are assumed to be imbedded in the expenses of the Federal agencies [excluding the Council which has no ESA related expenses.])

9/ Interest expense includes BPA's interest on bonds (for fish and wildlife) and interest on the Corps of Engineers (Federal) investment in fish and wildlife assigned to the power purposes of the Federal projects. Amortization reflects BPA's bonds and depreciation reflects the Federal investment in fish and wildlife. These amounts include expenses for interest during construction on federal investments.

10/ "ESA drawdown" includes operations of the four Lower Snake River dams at near minimum operating pool elevations and John Day Dam at minimum irrigation pool, as in 1992. Other drawdown proposals being studied include physical changes to the Lower Snake River dams. These proposals would result in significantly higher costs and are not included in either the ESA drawdown or reduced forebay levels in these tables.

6-Mar-96

DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
FY 1997 CONGRESIONAL BUDGET SUBMITTAL
FISH AND WILDLIFE INVESTMENTS CROSSCUT
(Dollars in Millions)

REFLECTS FISH AND WILDLIFE DRAFT BUDGET AGREEMENT OF 9/18/95
FOR THE PERIOD FY 1996 - FY 2001

	Fish Funded By	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 1996 - FY 2001 AVERAGE	FY 1996 - FY 2001 CUMULATIVE TOTAL
CAPITAL INVESTMENTS									
BPA FISH AND WILDLIFE 1/	BPA	27.0	27.0	27.0	27.0	27.0	27.0	27.0	162.0
ASSOCIATED PROJECTS (FEDERAL HYDRO) 2/	COE	73.4	98.8	167.5	103.3	110.6	273.2	137.8	826.8
TOTAL CAPITAL INVESTMENTS		100.4	125.8	194.5	130.3	137.6	300.2	164.8	988.8
PROGRAM OPERATING EXPENSES									
BPA DIRECT FISH AND WILDLIFE EXPENSE PROGRAM 1/									
NON-ESA ACTIVITIES		43.0	35.0	--	--	--	--	--	--
ESA ACTIVITIES		57.0	65.0	--	--	--	--	--	--
TOTAL BPA DIRECT EXPENSES		100.0	100.0	100.0	100.0	100.0	100.0	100.0	600.0
BPA POWER PURCHASES FOR FISH ENHANCEMENT (NET) 3/									
U COLUMBIA RIVER WATER BUDGET	BPA	--	--	--	--	--	--	--	--
SPILL FOR JUVENILE/ADULT PASSAGE	BPA	--	--	--	--	--	--	--	--
FLOW AUGMENTATION	BPA	--	--	--	--	--	--	--	--
REDUCED FOREBAY LEVELS	BPA	--	--	--	--	--	--	--	--
TOTAL NET POWER PURCHASES		97.5	96.0	89.0	91.5	94.0	80.5	91.4	548.5
REIMBURSABLE (ASSOC. PROJECTS - FEDERAL HYDRO) 4/									
O & M LOWER SNAKE RIVER HATCHERIES	USFWS	12.3	13.9	13.9	13.9	13.9	13.9	13.6	81.8
O & M CORPS (w/bypass eff. FY 1992)	COE	20.8	20.8	20.8	20.8	20.8	20.8	20.8	124.8
O & M BUREAU (hatchery eff. FY 1992)	BOR	1.3	1.4	1.4	1.4	1.4	1.4	1.4	8.3
OTHER (NW POWER PLANNING COUNCIL)	BPA	4.0	4.4	4.4	4.4	4.4	4.4	4.3	26.0
TOTAL REIMBURSABLE		38.4	40.5	40.5	40.5	40.5	40.5	40.2	240.9
TOTAL PROGRAM OPERATING EXPENSES		235.9	236.5	229.5	232.0	234.5	221.0	231.6	1389.4
PROGRAM FIXED EXPENSES - CAPITAL INVESTMENTS 5/									
INTEREST EXPENSE	BPA	52.2	63.3	77.6	86.2	94.7	117.1	81.9	491.1
AMORTIZATION EXPENSE	BPA	11.2	13.0	14.9	16.5	17.9	19.0	15.4	92.5
DEPRECIATION EXPENSE	BPA	9.7	10.9	13.2	15.0	16.7	19.9	14.2	85.4
TOTAL PROGRAM FIXED EXPENSES		73.1	87.2	105.7	117.7	129.3	156.0	111.5	669.0
GRAND TOTAL PROGRAM EXPENSES		309.0	323.7	335.2	349.7	363.8	377.0	343.1	2058.4
FOREGONE REVENUES 3/									
U COLUMBIA RIVER WATER BUDGET	BPA	--	--	--	--	--	--	--	--
SPILL FOR JUVENILE/ADULT PASSAGE	BPA	--	--	--	--	--	--	--	--
FLOW AUGMENTATION	BPA	--	--	--	--	--	--	--	--
REDUCED FOREBAY LEVELS	BPA	--	--	--	--	--	--	--	--
SUBTOTAL		97.5	96.0	89.0	91.5	94.0	80.5	91.4	548.5
TOTAL - PROGAM EXPENSES & FOREGONE REVENUES		406.5	419.7	424.2	441.2	457.8	457.5	434.5	2606.9

THE ACCOMPANYING NOTES ARE AN INTEGRAL PART OF THIS TABLE.

DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
FY 1997 CONGRESSIONAL BUDGET
Notes - Fish and Wildlife Investments Crosscut Table
Fiscal Years 1996 through 2001

These notes support the display of the Pacific Northwest electric utility ratepayers' planned investment in fish and wildlife activities within the Columbia River Basin. The table represents a forecast of the annual expense for all fish and wildlife investments funded under the Federal Columbia River Power System (FCRPS) from a rate making, revenue requirement perspective for the period Fiscal Years (FY) 1996 to 2001. The forecast reflects, and is consistent with, the fish and wildlife budget agreement announced by the Administration in October 1995, that calls for Bonneville's fish and wildlife expenses to average $435 million per year for the period FY 1996 - FY 2001. The details regarding the implementation of the budget agreement will be developed as an interagency agreement among the affected Federal agencies (Bonneville, National Marine Fisheries Service (NMFS), Corps of Engineers, and the Department of the Interior) in consultation with the Northwest Power Planning Council (Power Planning Council) and the Tribes.

The costs shown in the table are assumed to be budget outlays (obligations equal outlays) for the years shown. The title "Capital Investments," shown at the top of the table, is presented for information only. The annual expense (interest, amortization, and depreciation) associated with these capital investments is shown under the title "Program Related Fixed Expenses."

Bonneville has a mandate, under the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act), to undertake activities to enhance and support fish and wildlife resources adversely affected by the hydroelectric development of the Columbia River Basin. Under the Act, the Power Planning Council has adopted a Fish and Wildlife Program that oversees Columbia River basin-wide efforts to improve fish and wildlife survival. In conjunction with the Power Planning Council, affected states within the Bonneville service area, public agencies and Indian tribes, BPA identifies opportunities for effective actions to restore habitat and support fish and wildlife population, and provides funding for those activities.

Bonneville also has a mandate to implement measures called for under the Endangered Species Act (ESA). These measures are part of the Biological Opinions (BO) issued by NMFS and the U.S. Fish and Wildlife Service (USFWS) regarding the operations of the Federal Columbia River hydro electric system. The expenses associated with the calendar year (CY) 1995 NMFS BO, addressing measures regarding listed salmon species, and the CY 1995 USFWS BO, addressing measures concerning Kootanai River sturgeon and certain Snake River snails, are reflected in the table. As the other Federal agencies (that are part of the FCRPS) implement actions called for in the BO's, these expenses will also become part of Bonneville's repayment responsibilities as the costs are assigned to the power purposes of the Federal projects.

Bonneville funding of the Power Planning Council's Fish and Wildlife Program measures and BO measures called for under ESA, beginning in FY 1992, have increasingly become interrelated and as such, difficult to separately track. As a result, the ESA activities reported under the heading "BPA Direct Fish and Wildlife Program" are not separated in out-year forecasts that extend beyond the budget year FY 1997.

Bonneville's direct program "budget" is the source of funding the Council's Fish and Wildlife Program and certain ESA measures called for in the BO's. The ESA expenses identified in this table for FY's 1996 and 1997, include both expenditures specifically mandated by ESA and also those expenditures that, while not specifically mandated, are intended to assist in the recovery of ESA-listed species.

Bonneville's direct fish and wildlife budget is reflected in this table under two headings. The first is under "Capital Investments - BPA Fish and Wildlife" and reflects the capital portion of the direct budget. The second is under "Program Operating Expenses - BPA Direct Fish and Wildlife Program" and reflects the expense portion of the direct budget. (Because this table presents a "revenue requirement" view of Bonneville's overall fish and wildlife annual expense, only the fixed expenses associated with the capital investments are included in the total, as noted above.)

Within Bonneville's direct program, priority for funding will focus first on implementing the reasonable and prudent alternatives contained in the NMFS and USFWS BO's and second, on measures implementing the Power Planning Council's Fish and Wildlife Program. A current goal of the Power Planning Council, and one supported by Bonneville, is that all projects funded under both Bonneville's direct program as well as the reimbursable and capital investment components of the other Federal agencies (as reflected in the table) will be reviewed and prioritized as part of a Power Planning Council initiated process. It is anticipated that such a process will be examined and considered as part of the Power Planning Council's 180-day review of governance for fish and wildlife within the FCRPS as called for in the FY 1996 Energy and Water Appropriations Act.

- Treasury credit adjustments for implementation of Section 4(h)(10)(C) of the Northwest Power Act are not reflected in the table. Bonneville will receive $50 million to $60 million a year as a Treasury credit to account for impacts on fish and wildlife of the nonpower purposes of the region's Federal hydro electric projects. An additional $325 million in retroactive Treasury credit funds will be made available to Bonneville in the event of low-water years or court-ordered fish and wildlife spending that exceeds the $435 million. This contingency fund represents money Bonneville ratepayers have already paid for fish and wildlife costs of nonpower uses of Federal hydro electric projects. Section 4(h)(10)(C) credits are based on analysis that shows Bonneville's power share is 73 percent and the nonpower (taxpayer) share is 27 percent.
- The table represents a "revenue requirement" view of Bonneville's fish and wildlife funding responsibilities except for foregone revenues. All expenses in these tables are paid for by Bonneville's ratepayers.
- Power purchases and foregone revenues reflect the average of 50 water year conditions. These expenses reflect operational measures called for in the CY 1995 National Marine Fisheries Service's Biological Opinion and the Power Planning Council's Fish and Wildlife Program (to the extent the Program measures are not in conflict with BO measures).

Footnotes

1/ Based on outlays associated for Bonneville's capital and expense budgets. The total amount shown in each fiscal year is consistent with the fish and wildlife budget agreement of $435 million for the period FY 1996 - FY 2001. ESA expenditures are planned to continue beyond the budget year (FY 1997) but are not separately forecasted at this time.

2/ Based on plant-in-service estimates developed in conjunction with the Corps of Engineers and Bureau of Reclamation. The amounts shown are consistent with the fish and wildlife budget agreement of $435 million for the period FY 1996 - FY 2001. These plant-in-service estimates reflect capital features that are projected to come on line and become subject to Treasruy repayment by Bonneville under the FCRPS. These estimates do not reflect the COE's annual budget amounts for capital construction.

3/ Expenses are split 50/50 between net power purchases and foregone revenues for display purposes only and are based on the average of 50 water year conditions. Actual expenses will be determined by annual water conditions and the price for power. No attempt has been made at this time to break down the annual estimates into the four sub-categories. The amounts shown are consistent with the fish and wildlife budget agreement of $435 million for the period FY 1996 - FY 2001.

4/ Reimbursable (Associated Projects) costs reflect the power share of the fish and wildlife O&M reimbursed to the Treasury and one-half of the budget estimated for the Power Planning Council. The amounts shown are consistent with the fish and wildlife budget agreement of $435 million for the period FY 1996 - FY 2001. ESA expenditures are assumed to be imbedded in the other Federal agencies O&M (excluding the Council which has no ESA related expenses). These expenses, however, are not separately reported to Bonneville and therefore are not broken out in this table.

5/ Interest expense includes Bonneville's interest on bonds (for fish and wildlife) and interest on the Federal investment in fish and wildlife assigned to the power purposes of the Federal projects. Amortization reflects BPA's bonds and depreciation reflects the Federal investment in fish and wildlife. These amounts include expenses for interest during construction on federal investments. The amounts shown are consistent with the fish and wildlife budget agreement of $435 million for the period FY 1996 - FY 2001.

3/6/96 (Rev. 3/14/96) DByrnes:dmb:3171 (ECB - SB25F2P1)

Overview of Performance Summaries

BPA's Performance summaries are divided into two sections, reflecting their economic character and source of funding.

The first section, Capital Programs, includes accrued expenditures for Bonneville's five capital budget programs providing for capital investments in electric utility and general plant associated with the Federal Columbia River Power System's (FCRPS) transmission services, capital equipment, hydroelectric projects, conservation and capital investments in environment, fish and wildlife. These five programs will require budget obligations and new borrowing authority of $287 million in FY 1997. A sixth category reflects the premium BPA will incur to refinance bonds sold to the Treasury for FCRPS capital investments, whenever BPA makes such refinancing.

BPA's second section of the Performance Summaries, entitled Annual Operating Expenses, includes accrued expenditures for Bonneville's eight expense and capital transfer programs financed by power sales and transmission services revenues and BPA reimbursable activities funded by benefiting entities. For FY 1997, BPA's revenue funded programs will require budget obligations of $3,055 million. Reimbursable activities are budgeted at $18 million and capital transfers are estimated at $263 million for FY 1997.

Since BPA has four budget programs with both capital and expense components (Transmission Services, Marketing, Conservation & Production, Associated Projects, and Environment/Fish & Wildlife), the capital and expense components of these four programs must be combined for total program requirements. The total program requirements of all BPA programs will include estimated budget obligations of $3,360 million in FY 1997.

Amounts shown in the performance summaries for the budget line item entries are accrued expenditures. Totals are shown on both a budget obligation and an accrued expenditure basis. Tabular amounts for performance summary line items are in thousands of dollars.

I. Mission Supporting Goals and Objectives:

The competitive market situation is driving the need for alternatives to the traditional approaches to developing conservation resources. BPA is transitioning from centralized, BPA funded programs to new customer driven approaches. BPA is participating with other regional entities to support market transformation activities and development of energy services business systems and products.

II. Funding Schedule of Accrued Expenditures:

(Dollars in thousands)

Program Activity	FY 1995	FY 1996	FY 1997 1/	$ Change	% Change
Existing Activities	$ 59,000	$ 55,000	$ 25,000	$ -30,000	-55%
Marketing Transformation	--	10,000	10,000	--	--
Energy Service Charge	--	40,000	40,000	--	--
Total, Marketing, Conservation & Production - Capital Expenditures	$ 59,000	$ 105,000	$ 75,000	$ -30,000	-29%
Total Capital Obligations	$ 59,000	$105,000	$ 54,000	$ -51,000	-49%

1/ The FY 1997 accrual amount of $75 million consists of $54 million in new obligations and $21 million for projected expenditures in FY 1997 for multi-year conservation contract commitments made in prior years. The obligation amounts for FY 1997 are $4 million for Existing Activities, $10 million for Market Transformation, and $40 million for conservation and energy efficiency activity. The contract commitments were made as part of BPA's rate-based conservation programs run in partnership with utilities. These programs ended in FY 1995 and were replaced with new conservation reinvention approaches, including the new Market Transformation program.

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III. Performance Summary:

FY 1995 Accomplishments:

- **Existing Activities:** Acquired an estimated 49 average megawatts. Supported utilities in transition to locally funded conservation programs, and development of local conservation plans to meet specific customer needs. Ongoing program areas include residential, commercial, industrial, agricultural conservation acquisitions. Began developing products and researching markets for marketing energy services. Collaboratively developed future directions for implementation of Bonneville's conservation responsibilities with customers, interest groups, local, state and federal agencies, and other external entities.

- **Market Transformation:** Discussed proposed ventures in regional forums collaboratively shape and define this activity. Conducted educational briefings for local, state and federal entities in addition to other interested parties, to share information on how this activity fits in Bonneville's new approach to meeting its conservation responsibilities. Established regional infrastructure, and entered into collaborative partnerships with utilities and other sponsors of national ventures.

FY 1996 Planned Accomplishments:

- **Existing activities:** Support utilities in transition to locally funded conservation programs, and development of local conservation plans to meet specific customer needs. Complete local conservation plans for 50 percent of the utilities in Bonneville's service territory. Oversee and monitor program close-out for residential, commercial, industrial, agricultural conservation acquisitions. Collaboratively develop future directions for implementation of Bonneville's conservation responsibilities with customers, interest groups, local, state and federal agencies, and other external entities.

- **Market Transformation:** Continue regional infrastructure activities. Begin research and development projects identified in collaborative forums. In partnership with other entities, provide funding for regional projects that support market transformation for manufactured housing, electric lighting and washing machines. Define and begin additional ventures related to motors, irrigated agricultural pumping schedules, and geothermal heat pumps. Continue developing new regional partnerships to explore potential market transformation opportunities. Continue forums to share information with customers and other external entities.

- **Energy Service Charge/Conservation and Energy Efficiency Services:** This funding will be used for two related but different activities. First, Bonneville will support utility transition to locally funded programs through offering alternative financing mechanisms, local planning and collaborative policy development. The alternative financing mechanism (Energy Service Charge) allows Bonneville to recover these funds through a recovery of the value of the energy savings associated with the projects for which funds are used. Bonneville is also collaboratively working with customers to locate non-governmental sources of funds for running customer-specific conservation and energy efficiency programs. It is intended that the alternative funding mechanism is a short-term transition option to support customers. The BPA Marketing Plan stresses that reliance on incentives to encourage consumer participation in Bonneville conservation and energy efficiency programs should be replaced with other approaches that are more market-driven and results oriented.

Second, this funding provides support to conservation and energy efficiency services, which include energy audits and other conservation and energy efficiency related activities. This overall activity may be subject to substantial further reductions as Bonneville considers new ways to carry out its conservation and energy efficiency responsibilities. All funds in this activity will be reimbursed to Bonneville through revenues received from conservation and energy eficiency services sales, and energy received from customers in Shared Savings agreements.

FY 1997 Planned Accomplishments:

- **Existing activities:** Support utilities in transition to locally funded conservation programs, and development of local conservation plans to meet specific customer needs. Complete local conservation plans for the second 50 percent of the utilities in Bonneville's service territory. Oversee and monitor program close-out for residential, commercial, industrial, agricultural conservation acquisitions. Collaboratively develop future directions for implementation of Bonneville's conservation responsibilities with customers, interest groups, local, state and federal agencies, and other external entities.

- **Market Transformation:** Continue regional infrastructure activities. Continue research and development projects identified in collaborative forums. In partnership with other entities, provide funding for regional projects that support market transformation for manufactured housing, electric lighting, washing machines, motors, irrigated agricultural pumping schedules, and geothermal heat pumps. Begin development of additional ventures that have been identified in regional forums. Continue developing new regional partnerships to explore potential market transformation opportunities. Continue forums to share information with customers and other external entities.

- **Energy Service Charge/Conservation and Energy Efficiency Services:** This funding will be used for two related but different activities. First, Bonneville will support utility transition to locally funded programs through offering alternative financing mechanisms, local planning and collaborative policy development. The alternative financing mechanism (Energy Service Charge) allows Bonneville to recover these funds through a recovery of the value of the energy savings associated with the projects for which funds are used. Bonneville is also collaboratively working with customers to locate non-governmental sources of funds for running customer-specific conservation and energy efficiency programs. It is intended that the alternative funding mechanism is a short-term transition option to support customers. The BPA Marketing Plan stresses that reliance on incentives to encourage consumer participation in Bonneville conservation and energy efficiency programs should be replaced with other approaches that are more market-driven and results oriented.

  Second, this funding provides support to conservation and energy efficiency services, which include energy audits and other conservation and energy efficiency related activities. This overall activity may be subject to substantial further reductions as Bonneville considers new ways to carry out its conservation and energy efficiency responsibilities. All funds in this activity will be reimbursed to Bonneville through revenues received from conservation and energy eficiency services sales, and energy received from customers in Shared Savings agreements.

Explanation of Accrued Expenditures Funding Changes FY 1996 to FY 1997

The decrease of $ 30,000,000 results from rampdown and completion of rate-based incentivized resource acquisitions through conservation programs which were replaced with new conservation reinvention approaches that support utilities in setting up their own conservation programs.

TRANSMISSION SERVICES - CAPITAL

I. Mission Supporting Goals and Objectives:

Transmission Services provides for all additions, upgrades, and replacements to the Federal transmission system in the Pacific Northwest, allowing reliable service to be provided to Northwest industrial users and utility customers. The transmission system also provides for the sale and exchange of power to and from the region. The system replacement plan is to replace high risk, obsolete, and maintenance intensive facilities and equipment, and reduce catastrophic equipment failure by 1) replacement of high voltage transformers and power circuit breakers which are at or near the end of their useful life, 2) replacement of risky outdated and obsolete control and communications equipment, and 3) replacement of all other existing high risk equipment and facilities affecting the safety and reliability of the transmission system.

BPA's operational telecommunications system is being upgraded to include fiber optics for several reasons. Current microwave radios are becoming technologically obsolete and nearing the end of their useful life. Radio frequencies are difficult to obtain in some areas due to frequency congestion. Government radio frequencies have been reallocated and legislation is being proposed to reallocate and auction additional Government frequencies, including those used by BPA. Also, fiber optics will help BPA stay competitive in the new utility environment which will require increased use of real time information for scheduling and operating the transmission system.

II. Funding Schedule of Accrued Expenditures: **(Dollars in thousands)**

Program Activity	FY 1995	FY 1996	FY 1997 2/	$ Change	% Change
Allowance for Funds Used During Construction (AFUDC) 1/	$ --	$ 7,000	$ 10,000	$ +3,000	+43%
Main Grid	$ 14,000	$ 39,000	$ 44,000	$ +5,000	+13%
Area and Customer Services	$ 22,000	$ 15,000	$ 25,000	$ +10,000	+67%
Upgrades and Additions	$ 69,000	$ 56,000	$ 37,000	$ -19,000	-34%
System Replacements	$ 52,000	$ 57,000	$ 53,000	$ -4,000	-7%
Total, Transmission Services - Capital Expenditures	$ 157,000	$ 174,000	$ 169,000	$ -5,000	-3%
Total, Transmission Services - Capital Obligations	$ 150,000	$ 131,000	$ 163,000	$ +32,000	+24%

1/ In FY 1995, AFUDC is incorporated in the individual facilities' costs of the other budget line items.

2/ The difference between accruals and obligations is the amount of prior year obligations not accrued in the year of obligation. FY 1997 obligations are $43 million for Main Grid, $24 million for Area and Customer Services, $43 million for Upgrades and Additions, and $53 million for System Relacements.

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III. Performance Summary:

FY 1995 Accomplishments:

- **Main Grid:** (1) Completed the design for the Bellingham Area Reinforcement facility. This facility will improve the transfer capability between British Columbia and the Northwest by 850 MW and optimize the use of regional resources. (2) Completed the design and material acquisition for the Northwest Montana/North Idaho Support facility. This facility maintains reliable service in the Northwest Montana/North Idaho area. (3) Completed the design for the South Seattle-Olympia Reinforcement facility. This facility provides adequate transmission capacity to accommodate summertime generation patterns during heavy imports from Canada and maintains reliability to local loads. (4) Continued preliminary engineering and design for various transmission system, system reactive and system efficiency improvements. These facilities are required to maintain reliable service for the BPA service area.

- **Area and Customer Service:** (1) Completed the Hungry Horse-Columbia Falls line rebuild. This facility integrates the full capacity of the upgraded generation at Hungry Horse Dam. (2) Completed the Minidoka Area Service facility. This facility upgrades the 34.5-kV transmission system in the Minidoka area to 138 kV. The 34.5-kV source is from Minidoka Dam and was eliminated when the Bureau of Reclamation upgraded the powerhouse and switchyard to 138 kV. This facility reduces extensive rebuilding costs and O&M costs associated with the 34.5-kV system and eliminates many safety hazards. (3) Completed the design and acquired materials for the La Grande Transformer Support facility. This facility maintains reliable service in the Northeast Oregon area. (4) Completed the design and acquired materials for the Klickitat/Skamania Southern County Support facility. This facility will maintain reliable service in Southern Klickitat and Skamania counties. (5) Continued design on the Tri-Cities Area Reinforcement facility. This facility will maintain reliable service in the Tri-Cities, Washington, area. (6) Continued preliminary engineering and design for miscellaneous facilities which are required to maintain reliable service for the BPA service area.

- **Upgrades and Additions:** (1) Completed the design and construction of the new Munro Control Center in Spokane, Washington. Acquired major materials for the new digital microwave system. The control center replaces the Eastern Control Center in Moses Lake, Washington. (2) Completed the design and material acquisition and began construction of the Hot Springs-Garrison fiber optic communication facility, which provides alternate route communications required to meet both BPA and Western Systems Coordinating Council (WSCC) reliability requirements. (3) Also began construction of the Ross-Franklin fiber optic facility required to provide future bandwidth capacity that will allow high-speed data transfers between Dittmer and Munro Control Centers. (4) Began design of the Supervisory Control And Data Acquisition (SCADA) Backup for Emergencies (phase 2). The backup will provide supervisory control and monitoring of all substations at Dittmer and Munro control centers. (5) Completed and continued preliminary engineering, design, material acquisition, and construction for various system additions required to maintain reliable service for the BPA service area.

III. Performance Summary (Cont'd)

- **System Replacements:** (1) Acquired additional land for the Covington Maintenance Headquarters facility to enable future expansion in an area increasing in population density. (2) Replaced the major refueling station at Ross, which eliminates an environmental hazard. (3) Increased fire protection at the Celilo DC Converter Station to minimize risk of a major outage. (4) Resurfaced 12 deteriorating switchyards. (5) Rebuilt 2 Celilo converter transformers in lieu of replacement, saving about $4 million. (6) Replaced old and maintenance-intensive 500-kV breakers at John Day and Ostrander Substations to reduce risk of catastrophic failures and system outages and to maintain system reliability. (7) Replaced numerous lower voltage breakers at 21 substations to reduce risk of catastrophic failures and system and customer outages and to maintain system reliability. (8) Replaced the following system protection devices for system reliability: annunciators at 6 stations, relays at 23 stations, substation integrated control systems (SICS) at 2 stations, and oscillographs at 4 stations. (9) Replaced the following system control devices for system reliability: microwave transfer trip (MWTT) devices at 16 stations, SCADA devices at 10 stations, UHF radios at 16 stations, and communication batteries and chargers at 30 stations.

FY 1996 Accomplishments (to date and planned):

- **Main Grid:** (1) Complete material acquisition and begin construction of the Bellingham Area Reinforcement facility. (2) Complete material acquisition and begin construction of the South Seattle-Olympia Reinforcement facility. (3) Complete construction of the Northwest Montana/North Idaho Support facility. (4) Begin preliminary engineering on the Eastern Canadian Intertie (Grand Coulee Dam to the Canadian Border 'Oliver') facility. This facility, which is approved in accompanying Appropriations language authority, provides transmission facilities that are required for returning the Canadian Entitlement power to Canada and to increase power transfer capability between the U.S. and Canada. (5) Begin preliminary engineering on the Southwest Portland Area Support facility. This facility will prevent overloads of the BPA and PGE facilities which would otherwise result in violation of the National Electric Safety Code, and will eliminate equipment damage. (6) Begin preliminary engineering for the King County System Reinforcement facility. This facility is required to provide adequate transmission capacity to accommodate spring and summer generation patterns during heavy imports from Canada and to maintain reliability to local loads. (7) Continue preliminary engineering and design for various transmission system, system reactive, and system efficiency improvements. These facilities will be required to maintain reliable service for the BPA service area.

- **Area and Customer Service:** (1) Complete construction for the La Grande Transformer Support facility. (2) Complete construction for the Klickitat/Skamania Southern County Support facility. (3) Complete design, material acquisition, and construction for the Tri-Cities Area Reinforcement facility. (4) Complete design and material acquisition for The Dalles Area Reinforcement facility. This facility is required to maintain system stability and to dispatch generation from The Dalles Powerhouse without transmission restrictions, and to provide reliable service to the 115-kV load in the area. (5) Begin preliminary engineering for the Teton Area Reinforcement facility. This facility is needed to prevent low voltages in the Teton, Idaho, and Jackson, Wyoming, area. (6) Begin preliminary engineering for the Franklin Area Reinforcement facility. This facility will maintain reliable service in the Franklin County, Washington area. (7) Complete design and material acquisition for the Chehalis Transformer Support facility. This facility will maintain reliable service in the Chehalis, Washington, area. (8) Continue preliminary engineering and design for miscellaneous facilities are required to maintain reliable service for the BPA service area.

III. Performance Summary (Cont'd)

- **Upgrades and Additions:** (1) Energize and commence testing of the new Munro Control Center and associated microwave radio communications. (2) Energize the Hot Springs-Garrison and Ross-Franklin fiber optic communications facilities. (3) Begin design of the Operational Data Network facility, which will simplify the interconnection of control center data systems. (4) Begin the "B" system replacement, which will enhance the reliability of remedial action schemes. (5) Begin construction of the SCADA Master replacement. (6) Begin design and material acquisition for the HVDC Master Controller at Celilo. This facility will provide a simplified scheduling interface that will allow scheduling of the DC Intertie based on required power transfer from the dispatchers. (7) Complete and continue preliminary engineering, design, material acquisition, and construction for various system additions that are required to maintain reliable service for the BPA service area.

- **System Replacements:** (1) Perform major resurfacing at Redmond Substation to maintain usability of the facility. (2) Remodel regional office at Alvey. (3) Resurface 13 deteriorating switchyards. (4) Replace 500-kV transformers at Troutdale as result of explosion and fire, in order to maintain system reliability. (5) Rebuild 2 Celilo converter transformers in lieu of replacement, saving about $4 million. (6) Replace high-risk 500-kV breakers at Vantage, Marion, Little Goose, Monroe and Keeler to reduce risk of catastrophic failures and system outages and to maintain system reliability. (7) Replace numerous lower voltage breakers at 21 substations to reduce risk of catastrophic failures, system and customer outages, and to maintain system reliability. (8) Replace the following system protection devices for system reliability: annunciators at 10 stations, relays at 19 stations, and SICS at 2 stations, and oscillographs at 5 stations. (9) Replace the following system control devices for system reliability: MWTT devices at 28 stations, SCADA devices at 11 stations, UHF radios at 20 stations, telemetering devices at 18 stations, and communications batteries and chargers at 18 stations.

FY 1997 Accomplishments (Planned):

- **Main Grid:** (1) Complete construction of the Bellingham Area Reinforcement facility. (2) Complete construction of the South Seattle-Olympia Reinforcement facility. (3) Continue preliminary engineering on the Eastern Canadian Intertie (Grand Coulee Dam to the Canadian Border 'Oliver') facility. (4) Continue preliminary engineering on the King County System Reinforcement facility. (5) Continue preliminary engineering and design for various transmission system, system reactive, and system efficiency improvements. These facilities will be required to maintain reliable service for the BPA service area.

- **Area and Customer Service:** (1) Complete construction for The Dalles Area Reinforcement facility. (2) Complete construction for the Chehalis Transformer Support facility. (3) Continue preliminary engineering on the Teton Area Reinforcement facility. (4) Continue preliminary engineering on the Franklin Area Support facility. (5) Continue preliminary engineering and design for miscellaneous facilities which are required to maintain reliable service for the BPA service area.

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III. Performance Summary (Cont'd)

- **Upgrades and Additions:** (1) Complete testing and commence commercial operation of the Munro Control Center. (2) Energize SCADA backup, SCADA Master replacement at Dittmer, Operational Data Network, HVDC Master Controller. (3) Continue design and acquisition of materials for the B system replacement. (4) Begin design of the Breaker Failure Protection Retrofit (Phase 8) facility, which will detect breaker failures at seven 500 kV substations. (5) Begin the design of the Backup AGC system and Scheduling Function for the Munro Control Center. These facilities are critical to efficient interconnected operation of the power system and its regional ties. This is also a key element in complying with DOE order 1360.2. (6) Begin the design for an alternate control center capability (phase 2) at Munro Control Center in the event of catastrophic equipment failure at Dittmer. (7) Complete and continue preliminary engineering, design, material acquisition, and construction for various system additions that are required to maintain reliable service for the BPA service area.

- **System Replacements:** (1) Resurface 4 deteriorating switchyards. (2) Repair or replace 7 radio station buildings to adequately protect communications equipment. (3) Perform major HVAC (heating, ventilation and air conditioning) replacements at Celilo and Ross facilities to protect expensive equipment and prevent outages. (4) Replace old water and sewer systems at Troutdale and Covington to meet current standards. (5) Rebuild 2 Celilo converter transformers in lieu of replacement, saving about $4 million. (6) Replace old and maintenance-intensive 500-kV transformers at Lower Monumental to reduce risk of catastrophic failures and system outages, and to maintain system reliability. (7) Replace numerous lower voltage breakers at 13 substations to reduce risk of catastrophic failures and system and customer outages, and to maintain system reliability. (8) Replace old and worn out disconnect switches at 7 substations to protect other expensive equipment. (9) Replace the following system protection devices for system reliability: annunciators at 10 stations, relays at 14 stations, and oscillographs at 9 stations. (10) Replace the following system control devices for system reliability: MWTT at 17 stations, SCADA devices at 11 stations, and UHF radios at 18 stations, telemetering devices at 18 stations, and communications batteries and chargers at 20 stations.

Explanation of Accrued Expenditure Funding Changes FY 1996 to FY 1997:

The system replacements component of the program decreased $4,000,000. The other budget line items of the program, main grid, area and customer service, and upgrades and additions combined, decreased by $1,000,000. All categories of capital investments in BPA's Transmission Services Program reflect funding adjustments necessary to make strategic investments for reliable and economic energy transmission while attempting to reduce investment requirements and reschedule energizations to support BPA's necessity to remain competitive in the region and fulfill its regional transmission service role.

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ASSOCIATED PROJECT COSTS - CAPITAL

I. **Mission Supporting Goals and Objectives:**

This program provides direct funding for additions, improvements and replacements of existing U.S. Bureau of Reclamation and Corps of Engineers hydroelectric projects in the Pacific Northwest. In addition to generating electricity, these projects serve many purposes including flood control, navigation, irrigation, recreation and water supply. The Bureau and Corps emphasize efficient power production from existing facilities and improvement of the performance and availability of power units. BPA is currently working with the Bureau and Corps to identify opportunities which increase system reliability and output.

II. **Funding Schedule of Accrued Expenditures:** (Dollars in thousands)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Corps of Engineers Capital	$ --	$ 2,000	$ 5,000	$ +3,000	150%
Bureau of Reclamation Capital	18,000	25,000	10,000	-15,000	-60%
Allowance for Funds Used During Construction (AFUDC)	--\1	4,000	3,000	-1,000	-25%
Total, Associated Project Costs - Capital Expenditures	$ 18,000	$ 31,000	$ 18,000	$ -13,000	-42%
Total - Capital Obligations	$ 18,000	$ 31,000	$ 18,000	$ -13,000	-42%

\1 AFUDC is incorporated in projects' costs of the budget line items when they are actually incurred. In other years, they are programmatic estimates.

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III. Performance Summary:

FY 1995 Accomplishments:

- Worked with both the Corps and the Bureau to better understand and agree on which capital improvement projects need to be budgeted and scheduled, are cost effective and are of mutual benefit to provide system or site specific enhancements and efficiencies. These types of projects are in line with BPA's strategic business objectives (SBO) to keep the power system reliable, be the low cost provider and operate in a more business-like manner.

- **Corps of Engineers:** Implemented direct funding of Corps capital investments in FCRPS. Continued direct funding of work for Unit No 9 Rewind at The Dalles and the 3-D Cam Update project

- **Bureau of Reclamation:** Continued direct funding of work for Rewinds and Stator Core Replacements G-22, G23 and G24 at Grand Coulee, the Powerhouse Replacement at Minidoka, and the Powerhouse Transformer Replacement and Switchyard Upgrade at Hungry Horse.

FY 1996 Accomplishments:

- Continue work with both the Corps and the Bureau to reach mutual agreement on which capital improvement projects need to be budgeted and scheduled, are cost effective and are of mutual benefit to provide system or site specific enhancements and efficiencies. These types of projects are in line with BPA's SBOs to keep the power system reliable, be the low cost provider and operate in a more business-like manner.

- **Corps of Engineers:** Complete work on Unit No. 9 Rewind at the Dalles and the 3-D Cam Update project, continue working on the 3-D Cam Update project. Begin work on Unit No.7 Rewind at The Dalles

- **Bureau of Reclamation:** Continue direct funding of work for Rewinds and Stator Core Replacements G22, G23 and G24 at Grand Coulee, the Powerhouse Replacement at Minidoka, and the Powerhouse Transformer Replacement and Switchyard Upgrade at Hungry Horse. Begin direct funding for Turbine Runner Replacements G1-G18 at Grand Coulee and the Boise River Diversion Powerplant Rebuild.

- Allowance for Funds Used During Construction (AFUDC) represents BPA's estimated capitalized interest cost on borrowings for construction work-in-progress.

III. Performance Summary (Cont'd)

FY 1997 Planned Accomplishments:

- Continue work with both the Corps and the Bureau to reach mutual agreement on which capital improvement projects need to be budgeted and scheduled, are cost effective and are of mutual benefit to provide system or site specific enhancements and efficiencies. These types of projects are in line with BPA's SBOs to keep the power system reliable, be the low cost provider and operate in a more business-like manner.

- **Corps of Engineers:** Complete work on Unit No.9 Rewind, Unit No.7 Rewind at The Dalles.

- **Bureau of Reclamation:** Complete work on the Rewinds and Stator Core Replacements G22, G23 and G24, at Grand Coulee, the Powerhouse Replacement at Minidoka, and the Powerhouse Transformer Replacement and Switchyard Upgrade at Hungry Horse. Continue direct funding for the Turbine Runner Replacements G1-G18 at Grand Coulee and the Boise River Diversion Powerplant Rebuild.

- **Allowance for Funds Used During Construction :** (AFUDC) represents BPA's estimated capitalized interest cost on borrowings for construction work-in-progress.

Explanation of Accrued Expenditure Funding Changes FY 1996 to FY 1997:

The decrease of $13,000,000 reflects a reduced fiscal level and/or rate of BPA direct-funded capital investment in Corps and Bureau FCRPS hydro projects. These reduced levels of BPA's funding of cost-effective hydro-project generating equipment improvements and efficiency projects are made in response to BPA's cost reductions to improve its competitive position and to help ensure BPA's fiscal capability to make its annual repayment of FCRPS cost to the Treasury

1596

I. **Mission Supporting Goals and Objectives:**

This activity provides for the protection, enhancement and mitigation of Columbia River Basin fish and wildlife losses attributed to the development and operation of hydroelectric projects on the Columbia River and its tributaries pursuant to Section 4(h) of the Pacific Northwest Power Act. BPA discharges a major portion of its fish and wildlife responsibilities and reduces the Administrator's obligation, by funding projects and activities designed to be consistent with the Northwest Power Planning Council's Fish and Wildlife Program. BPA is also mandated to implement measures called for under the Endangered Species Act. These measures are part of the Biological Opinions (BO) issued by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) regarding the operations of the Federal Columbia River hydro system. The capital associated with implementing the reasonable and prudent alternatives of the BOs that relate to BPA's direct fish and wildlife program are included in this budget projection. Additionally, this capital budget reflects, and is consistent with, the fish and wildlife budget agreement announced by the Administration in October 1995 that calls for BPA fish and wildlife expenses of $435 million per year on average for the period FY 1996 through FY 2001.

BPA's fish and wildlife capital program is directed at activities that increase numbers of Columbia River Basin fish and wildlife resources including projects designed to increase juvenile fish passage at mainstream dams, increase fish production and survival through construction of hatchery and acclimation facilities, fish monitoring facilities and fish habituate enhancement. Funding is also included for pre-engineering design and studies for new and developing projects. The priority for capital project funding will focus first on implementing the reasonable and prudent alternatives contained in the NMFS and USFWS Biological Opinions and second, on implementing the Council's Fish and Wildlife Program. A current goal of the Power Planning Council, and one supported by BPA, is that all projects funded under both Bonneville's direct program as well as the reimbursable and capital investment components of the other Federal agencies (see Fish and Wildlife Investments Crosscut Tables at front of budget document) will be reviewed and prioritized as part of a Power Planning Council initiative process. It is anticipated that such a process will be examined and considered as part of the Power Planning Council's 180-day review of governance for fish and wildlife within the Federal Columbia River Power System as called for in the FY 1996 Energy and Water Appropriations Act.

Pollution Prevention and Abatement resources support compliance with environmental laws and regulations and mitigate environmental risks associated with operation of the power system. This program assures compliance with the law, and targets pollution prevention and waste minimization. Environmental restoration of the Bonneville power system and capital improvements to mitigate and prevent future contamination are undertaken. The principal components are replacement of polychlorinated biphenyl (PCB) capacitors, installation of secondary oil containment and fire prevention equipment, and investigation and cleanup under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

II. Funding Schedule of Accrued Expenditures: **(Dollars in thousands)**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Anadromous Fish	$ 18,000	$ 25,000	$ 25,000	$ --	--%
Wildlife Program	13,000	--	--	--	--%
Pre-engineering Design	1,000	2,000	2,000	--	--%
Subtotal Fish & Wildlife	32,000	27,000	27,000	--	
Pollution Control & Abatement	16,000	15,000	13,000	-2,000	-13%
Total, Environment/Fish & Wildlife - Capital Expenditures	$ 48,000	$ 42,000	$ 40,000	$ -2,000	-5%
Total Capital Obligations	$ 43,000	$ 42,000	$ 40,000	$ -2,000	-5%

III. Performance Summary:

FY 1995 Accomplishments:

- **Anadromous Fish:** Bonneville continued construction on Yakima and Umatilla River hatcheries, the Yakima Screens Facilities Phase II, began final design work on the Nez Perce Hatchery and continued pre-design on the on Bonneville Dam Fish Sampling Facility. Construction continued on habitat improvement and passage projects, and small irrigation screening projects. Implementation continued for high priority Endangered Species Act related projects that include development and enhancement of model watersheds and activities associated with the National Marine Fisheries Service Biological Opinion.

- **Wildlife Program:** The wildlife program trust activity includes trust agreements established with the states in the Columbia Basin region. The trusts are designed to remedy the hydropower portion of the damage to river areas adjacent to the dams constructed. These trust arrangements should indemnify BPA from further fiscal exposure from this damage. Funding of approved trusts was completed.

- **Pre-engineering Design for Fish and Wildlife:** Funded pre-design work on future projects and fund ongoing engineering analysis as required.

- **Pollution Control & Abatement:** Several 500 megavolt-ampere reactive (MVAR) polychlorinated biphenyl (PCB) capacitors have been retired or replaced with non-PCB capacitors. Replacement of 300 MVAR PCB capacitors is in progress. Secondary oil containment and fire prevention equipment was installed at three substations and is in progress at seven additional substations. Ross Complex Superfund tasks: Fog chamber contamination has been capped; PCB capacitor yards have been cleaned up and replaced with non-PCB capacitors; cleanup of the capacitor test site

and wood pole yard are in progress. The Preliminary Assessment of the Starr Complex and Port Angeles Substation have been completed. Several hydrocarbon and PCB cleanups on the Bonneville power system have been completed.

FY 1996 Accomplishments (to date and planned):

- **Anadromous Fish:** Continue construction on the Yakima and Umatilla River hatcheries, the Yakima Screens Facilities Phase II; complete final design and initiate construction of the Nez Perce Hatchery, initiate final design of the Bonneville Dam Fish Sampling Facility. Continue pre-design work on Northeast Oregon hatchery. Construct habitat improvement passage projects and small irrigation screening projects. Continue implementation for high priority Endangered Species Act related projects that include development and enhancement of model watersheds and activities associated with the National Marine Fisheries Service Biological Opinion.

- **Wildlife Program:** No farther activities are anticipated for funding under this budget item now that approved wildlife trusts have been fully funded.

- **Pre-engineering Design for Fish & Wildlife:** Fund early pre-design work on future projects and fund ongoing engineering analysis as required.

- **Pollution Control & Abatement:** Continue replacement of 700 MVAR PCB capacitors as well as the installation of secondary oil containment and fire prevention equipment. Continue the cleanup of the capacitor test site and wood pole yard at Ross continue.

FY 1997 Planned Accomplishments:

- **Anadromous Fish:** Continue construction on the Yakima and Umatilla River hatcheries, the Yakima Screens Facilities Phase II; continue construction of the Nez Perce Hatchery, complete final design on the Bonneville Dam Fish Sampling Facility. Continue pre-design work on Northeast Oregon hatchery. Construct habitat improvement passage projects and small irrigation screening projects. Continue implementation for high priority Endangered Species Act related projects that include development and enhancement of model watersheds and activities associated with the National Marine Fisheries Service Biological Opinion.

- **Wildlife Program**: No activities are anticipated for funding under this budget item now that approved wildlife trusts have been fully funded.

- **Pre-engineering Design for Fish & Wildlife:** Fund early pre-design work on future projects and fund ongoing engineering analysis as required/necessary.

- **Pollution Control & Abatement:** Continue the replacement of PCB capacitors with non-PCB capacitors. Continue the installation of oil spill containment and fire prevention equipment.

Explanation of Accrued Expenditures Funding Changes FY 1996 to FY 1997:

The fish and wildlife components of the program reflect a level program consistent with the fish and wildlife budget agreement announced by the Administration in October 1995, and the pollution control and abatement activity funding decreases $2,000,000 due to a priority change that emphasizes fire protection.

BONNEVILLE POWER ADMINISTRATION

CAPITAL EQUIPMENT

I. Mission Supporting Goals and Objectives:

This activity provides for the acquisition of general and dedicated special purpose capital automatic data processing (ADP) equipment, development of capitalized ADP software, and acquisition of special-use capital furniture and equipment in support of all BPA programs.

II. Funding Schedule of Accrued Expenditures:

(Dollars in thousands)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capital Equipment Accrued Expenditures	$ 17,000	$ 13,000	$ 12,000	$ -1,000	-8%
Capital Equipment, Obligations	$ 17,000	$ 13,000	$ 12,000	$ -1,000	-8%

III. Performance Summary:

FY 1995 Accomplishments:

- Acquired capital office furniture and equipment, capital ADP-based administrative telecommunications equipment, ADP equipment (hardware), and support capital software development for all BPA programs.

FY 1996 Accomplishments:

- Acquire capital office furniture and equipment, capital ADP-based administrative telecommunications equipment, ADP equipment (hardware), and support capital software development for all BPA programs. FY 1995 was a major acquisition period for BPA's local area network-wide area network (LAN/WAN) conversions.

III. Performance Summary (Cont'd)

FY 1997 Planned Accomplishments:

- Acquire capital office furniture and equipment, capital ADP-based administrative telecommunications equipment, ADP equipment (hardware), and support capital software development for all BPA programs.

Explanation of Accrued Expenditures Funding Changes FY 1996 to FY 1997

The decrease of $1,000,000 reflects the program's contributions, through reduced ADP hardware acquisitions (e.g., PC's, printers, monitors, etc.), to BPA's recent cost-reductions made to enhance the agency's fiscal integrity and improve service delivery and customer satisfaction.

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BONNEVILLE POWER ADMINISTRATION

CAPITALIZED BOND PREMIUM

I. Mission Supporting Goals and Objectives:

Bonneville Power Administration incurs a bond premium whenever it repays or refinances a bond before the due date. When bonds are refinanced, the bond premiums incurred are capitalized. Historically, BPA generally has chosen to finance capitalized bond premiums with bonds issued to the U.S. Treasury, as was envisioned in the Federal Columbia River Transmission System Act of 1974.

II. Funding Schedule:

(Dollars in thousands)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Capitalized Bond Premium, Accrued Expenditures	$ 0	$ 0	$ 0	$ 0	0
Capitalized Bond Premium, Obligations	$ 0	$ 0	$ 0	$ 0	0

III. Performance Summary:

FY 1995 Accomplishments:

- BPA made no refinancings requiring capital bond premium funding.

FY 1996 Accomplishments (to date and planned):

- BPA plans no refinancing requiring capital bond premium financing. Financial market conditions could change, however, and present business opportunities which would reduce ratepayer costs and increase the obligation and use of borrowing authority to finance the capitalized bond premium.

FY 1997 Planned Accomplishments:

- BPA plans no refinancing requiring capital bond premium financing. Financial market conditions could change, however, and present business opportunities which would reduce ratepayer costs and increase the obligation and use of borrowing authority to finance the capitalized bond premium.

BONNEVILLE POWER ADMINISTRATION

RESIDENTIAL EXCHANGE - OPERATING EXPENSE

I. **Mission Supporting Goals and Objectives:**

The Pacific Northwest Power Act created the residential exchange program to extend the benefits of low-cost Federal Power to the residential and small farm customers of investor-owned and publicly-owned utilities. Although it appears to be primarily a power transaction and is so treated in BPA's rate proceedings, the residential exchange is not a power transaction in the conventional sense. In effect, the program acts to lower the rates paid by the residential and small farm customers of exchanging utilities. No power is transferred to or from BPA. The gross cost of the exchange is partially offset by exchange revenues from participating utilities. The following estimates are updated for the 1996 Supplemental Rate Proposal

II. **Funding Schedule of Accrued Expenditures:**

(Dollars in Thousands)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Residential Exchange - Gross Cost	$ 1,007,000	$ 976,000	$ 1,140,000	$ 164,000	+17%
Revenue from Residential Exchange	809,000	828,000	993,000	165,000	+20%
Residential Exchange - Accrued Expenditures	$ 198,000	$ 148,000	$ 147,000	$ -1,000	-1%
Expense Obligations	1,007,000	976,000	1,140,000	164,000	+17%

III. **Performance Summary:**

FY 1995 Accomplishments:

- Exchanged 3,369 average megawatts of energy with 20 utilities in the region as mandated by the Pacific Northwest Power Act in order to extend the benefits of low-cost Federal power to regional residential and small farm customers.

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III. Performance Summary (Cont'd)

FY 1996 Accomplishments (to date and planned):

- Exchange 3,410 average megawatts of energy with 20 utilities in the region as mandated by the Pacific Northwest Power Act in order to extend the benefits of low-cost Federal power to regional residential and small farm customers

FY 1997 Planned Accomplishments:

- Comply with Energy and Water Development Appropriations Act, Public Law 104-46, by distributing $145 million in residential exchange cost benefits to utilities in the Residential Exchange Program based on such utilities' share of total FY 1995 residential exchange cost benefits.

Explanation of Funding Changes FY 1996 to FY 1997:

In accordance with the provisions of the Energy and Water Development Appropriations legislation for FY 1996, the cost of the program for 1997 is $145,000,000 in exchange cost benefits plus program implementation costs, essentially the same as the costs for FY 1996.

MARKETING, CONSERVATION & PRODUCTION - OPERATING EXPENSE

I. Mission Supporting Goals and Objectives:

This activity includes all BPA strategic resource planning and business development, short and long-term power purchases/wheeling, electric utility marketing of resources, conservation and energy services, generation and oversight costs, including the large thermal nuclear projects. This program identifies the Administrator's load obligations, plans and develops products and services to meet the needs of BPA customers, and acquires resources as needed. BPA is committed to meeting its share of the regional conservation targets set by the Northwest Power Planning Council in its regional power plan through demand-side management products and energy services; and investment in market transformation activities.

II. Funding Schedule of Accrued Expenditures: **(Dollars in Thousands)**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Short -Term Power Purchases/PNCA Interchange	$ 164,000	$ 188,000	$ 93,000	$ -95,000	-51%
Long -Term Power Purchase/Wheeling	25,000	66,000	85,000	+19,000	+29%
Power Scheduling/Marketing	87,000	99,000	98,000	-1,000	-1%
Conservation	17,000	63,000	50,000	-13,000	-21%
Generation & Oversight	20,000	24,000	22,000	-2,000	-8%
Trojan	10,000	22,000	27,000	+5,000	+23%
WNP-2	409,000	413,000	418,000	+5,000	+1%
WNP-1/Hanford and WNP-3	305,000	322,000	312,000	-10,000	-3%
Total Marketing, Conservation & Production - Operating Expense	$ 1,037,000	$ 1,197,000	$ 1,105,000	$ -92,000	-8%
Total Marketing, Conservation & Production - Expense Obligations	$ 1,037,000	$ 1,197,000	$ 1,105,000	$ -92,000	-8%

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III. Performance Summary:

FY 1995 Accomplishments:
Conservation:

- **Existing Activities**: Acquired conservation resources through competitive acquisition, billing credits and multi-sector mechanisms. Reimbursed Eugene Water Electric Board (EWEB) for residential weatherization. Provided financial assistance to local governments, Indian Tribes, and utilities for technical assistance, utility and builder training, and enforcement of Model Conservation Standards (MCS). Continue Super Good Cents marketing program. Continued the State Technical Assistance Program on encourage efficient use of electrical energy and renewable resources. Began development of products and services for Energy Services Business.

- **Market Transformation**: Started this activity. Funds covered salaries, investments in research and development projects, and support for national collaborative and research efforts. Bonneville supported regional infrastructures, including education and information outreach, state and local governments, community colleges, and the architectural design community.

FY 1996 Planned Accomplishments (to date and planned):
Conservation:

- **Existing Activities**: Continue previously contracted conservation activities as described in FY 1995. Renegotiate conservation contracts to achieve additional cost savings while maintaining acquisition of identified energy savings. Complete approximately one-third of the rate-based conservation programs. Support utilities through providing economic analyses, load forecasts, and analytical tools to aid the transition to locally funded conservation activities.

- **Market Transformation**: Continue support of regional infrastructures, research and development projects, and national efforts to raise awareness of opportunities to conserve energy. Support was provided for regional investments in energy efficient building codes and standards. The residential laundry venture was designed and implemented, and other ventures began to develop in motors, irrigated agricultural pump scheduling, and geothermal heat pumps.

- **Energy Services Business:** Continue development of products and services that generate positive net revenues for Bonneville. Identify potential markets and negotiate sales of products and services. Prepare bids and other cost/benefit analyses to support decisions on markets to pursue and sales to conclude. Train staff to ensure professional delivery of products and services. Begin implementation of sales agreements. Design additional internal business systems as needed to track and report costs and revenues. Develop staffing strategy to support the goal of the Energy Services Business becoming self-supporting as quickly as possible.

FY 1997 Planned Accomplishments:
Conservation:

- **Existing Activities:** Continue previously contracted conservation activities as described in FY 1995. Continue renegotiations of selected conservation contracts to achieve additional cost savings while maintaining acquisition of identified energy savings. Complete approximately one-third of the rate-based conservation programs. Support utilities through providing economic analyses, load forecasts, and analytical tools to aid the transition to locally funded conservation activities.

- **Market Transformation:** Continue previous year activities in infrastructure, research and development projects, national efforts, support for energy efficient building codes, and other ventures designed to raise awareness for opportunities to conserve energy.

- **Energy Services Business:** Continue development of energy management products and services that generate positive net revenues for Bonneville. Using results from energy management sales to date and market analyses, continue identification of additional markets and negotiate sales of product and services. Prepare bids and cost/benefit analyses to support decisions on energy management markets to pursue and on sales. Continue training of staff as more staff shifts from supporting rate-based conservation programs to supporting and implementing the Energy Services Business. Continue implementation of energy management sales agreements. Continue to update internal business systems as needed to track and report costs and revenues. Update staffing strategy to support the goal of the Energy Services Business becoming self-supporting as quickly as possible. This business activity does not include providing power brokering services nor does it include power marketing services inconsistent with Bonneville's current authority.

Other Marketing, Conservation & Production

FY 1995 Accomplishments:

- **Short-Term Power Purchases/PNCA Interchange:** Purchased power for resale, fish mitigation or for the efficient operation of the power system. Under terms of the Pacific Northwest Coordination Agreement (PNCA), made payments to other generating utilities for power received as interchange energy. Interchange energy is energy transferred between utilities either to supply all or a part of any deficiency between a utility's actual energy capability and its firm energy load carrying capability or to return such energy to the supplying utility.

- **Long-Term Power Purchase/Wheeling:** Acquired 100 percent of the Idaho Falls and Cowlitz Falls hydroelectric project output. Continued contract payments to acquire the power from one demonstration geothermal site in the region. Continued acquisition of power from existing billing credit projects.

- **Power Scheduling/Marketing:** Scheduled and marketed electric energy to BPA customers and Pacific Northwest's interconnected utilities. Placed major emphasis on scheduling and supporting implementation of intertie access policy and streamflow coordination with the water budget of the Fish and Wildlife Program.

- **Generation & Oversight:** Provided oversight of all contracts signed to date in addition to the CARES and the Wyoming Wind Projects. Finished the NEPA process for the Resource Contingency Program (RCP) Projects and the Conservation and Renewable Energy System (CARES) Wind Project, and started the National Environmental Policy Act (NEPA) process for the Glass Mountain Project. Created a new 6(c) process for the RCP Projects.

- Developed coordinated operation of the Pacific Northwest and Canadian Power Systems, investigate and analyze Canadian proposals for power export, analyze intertie needs and the economics of proposed intertie expansions. Provided oversight of large thermal generating plants from which BPA purchases capability to insure that all BPA approval rights are protected; coordinated, communicated and administered agreements, issues and programs between BPA and the project owners.

- Provided litigation and legal services covering existing and prospective financing arrangements involving the nuclear generating projects; Columbia River Treaty, non-Treaty and related resources issues; conservation and other resources acquired by BPA; and research relating to bankruptcy and tax issues involving entities with whom BPA has an existing contractual relationship. Includes major contract with the Department of Justice for the WNP-1 and WNP-3 cost sharing litigation.

- **Trojan:** The Trojan Nuclear power plant was terminated in 1993. Work continues on the decommissioning of the plant under the prompt DECON method. BPA funds Eugene Water and Electric Board's Trojan related costs including Trojan debt service and 30 percent of the decommissioning costs.

- **WNP-2:** Washington Public Power Supply System's WNP-2 is a 1,150 megawatt boiling water reactor nuclear power plant. BPA's budget provides for continued contractual obligation to acquire the full generating capability of the plant and to pay its debt service.. BPA pays these costs through its budget on a net-billed basis.

- **WNP-1/Hanford/WNP-3:** BPA continued to fulfill contractual obligations for WNP-1, Hanford Generating Project, and WNP-3. WNP-1 and WNP-3 nuclear power plants being built by WPPSS were terminated in 1995 and are now transitioning into asset disposition, site demolition and site restoration.

FY 1996 Accomplishments (to date and planned):

- **Short -Term Power Purchases/PNCA Interchange:** Continue activities in FY 1996 as described for FY 1995 and as consistent with the 1995 rate proposal.

- **Long -Term Power Purchase/Wheeling:** Continue acquisition of power from billing credit projects. Make option payments on contingency resource projects.

- Complete pre-construction activities for Wyoming Wind Project and CARES Wind Project. Pay pre-construction and investigation expenses for competitive acquisitions, if required. Terminate acquisitions for projects no longer required.

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- **Power Scheduling/Marketing:** Schedule and market electric energy to BPA customers and Pacific Northwest's interconnected utilities. Major emphasis placed on scheduling and supporting implementation of intertie access policy and streamflow coordination with the water budget of the Fish and Wildlife Program.

- **Generation & Oversight:** Provide oversight of all contracts signed to date in addition to the CARES and the Wyoming Wind Projects. Assure that all BPA approval rights are protected, coordinate, communicate and administer agreements, issues and programs between BPA and the project owners. Finish the NEPA process and develop a new contract construct for the RCP Projects.

- Develop coordinated operation of the Pacific Northwest and Canadian Power Systems, investigate and analyze Canadian proposals for power export, analyze intertie needs and the economics of proposed intertie expansions.

- **Trojan**: Continue termination activities for Trojan Nuclear Plant.

- **WNP-2**: Continue to acquire full capability of WNP-2 and seek additional efficiencies and economies.

- **WNP-1/Hanford/WNP-3:** Continue termination activities for WNP-1, Hanford and WNP-3.

FY 1997 Planned Accomplishments:

- **Short-Term Power Purchases/PNCA Interchange**: Continue activities in FY 1997 as described in FY 1996 and as consistent with the 1996 Initial Rate Proposal.

- **Long-Term Power Purchase/Wheeling**: Continue acquisition of power from existing billing credit projects as well as Wyoming Wind Project, CARES Wind Project and Wauna. Make option payments on contingency resource projects.

- **Power Scheduling/Marketing**: Schedule and market electric energy to BPA customers and Pacific Northwest's interconnected utilities. Major emphasis placed on scheduling and supporting implementation of intertie access policy and streamflow coordination with the water budget of the Fish and Wildlife Program.

- **Generation & Oversight**: Provide oversight of all contracts signed to date. Assure that all BPA approval rights are protected, coordinate, communicate and administer agreements, issues and programs between BPA and the project owners.

- Develop coordinated operation of the Pacific Northwest and Canadian Power Systems, investigate and analyze Canadian proposals for power export, analyze intertie needs and the economics of proposed intertie expansions.

- **Trojan:** Continue termination activities for Trojan Nuclear Plant as in FY 1996.

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- **WNP-2**: Continue to acquire full capability of WNP-2 and seek additional efficiencies and economies. Expected generation for FY 1997 is 7,200 gigawatt-hours of electricity.

- **WNP-1/Hanford/WNP-3**: Continue termination activities for WNP-1, Hanford and WNP-3 as in FY 1996.

Explanation of Funding Changes FY 1996 to FY 1997:

The net decrease of $92,000,000 in Marketing, Conservation and Production operating expenses activities in FY 1997 reflects BPA's efforts to remain competitive in the restructuring regional energy supply industry. Short-term power purchase funding requirements reflect forecast reduced demand for short-term power purchases due to anticipated improved hydrologic conditions. Long -term power purchase requirements increase to meet contractual commitments and contract termination costs as BPA scales back resource acquisitions in the face of supply-demand changes in the region. Energy conservation costs are forecast to be less in FY 1997 due to increased self-supporting conservation by the region's electric utilities. Nuclear plant costs reflect contract funding requirements and fiscal savings from increased operating efficiencies at WNP-2 in response to regional energy price competition.

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I. **Mission Supporting Goals and Objectives:**

This activity provides for the transmission system services of engineering, operations and maintenance for BPA's electric transmission system of 14,800 circuit miles (23,800 circuit kilometers) of lines, 400 substations, and associated power system control and communication and generation facilities with an invested cost of more than $4.8 billion. Primary strategies of this program are: 1) Maintain the safety and reliability of the transmission system; 2) increase the focus on customers; 3) optimize the transmission system; and 4) improve BPA's competitive position.

II. **Funding Schedule of Accrued Expenditures:** **(Dollars in Thousands)**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Engineering	$ 21,000	$ 19,000	$ 18,000	$ -1,000	--%
Operations	$ 35,000	$ 40,000	$ 40,000	$ --	
Maintenance	$ 83,000	$ 89,000	$ 88,000	$ -1,000	-1%
Transmission Services, Total Accrued Expenditures	$ 139,000	$ 148,000	$ 146,000	$ -2,000	-1%
Transmission Services, Total Obligations	$ 139,000	$ 148,000	$ 146,000	$ -2,000	-1%

III. **Performance Summary:**

Transmission Services operating expenses are comprised of a number of stable, ongoing efforts that meet the requirements of operating and maintaining an extensive regional transmission system. In 1995, many steps have been taken to increase the effectiveness of these efforts and reduce their costs throughout the planning and budgeting period (i.e. through FY 2001). The key activities included are:

- **Engineering:**
  R&D, Program Support, and Capital-to-Expense Adjustment: Conduct in-house transmission system research and development, including (1) studies on electro-magnetic fields and HVDC (high voltage direct current) outage reduction, (2) methods to uprate existing facilities and reduce maintenance costs, and (3) investigation of artificial intelligence/expert systems. Provide general program support activities, such as planning, budgeting, scheduling, etc. Annually, BPA analyzes its outstanding capital work orders to assess whether they should be expensed.

III. Performance Summary (Cont'd)

- **Operations:** Substation Operations - Perform operation functions necessary to provide electric service to customers and to protect the Government's investment in electric equipment. Includes equipment adjustments, switching lines and equipment during emergencies or maintenance, isolating damaged equipment, restoring service to customers, and inspecting equipment, reading meters, etc. Power System Control & Dispatching: Includes central dispatching, control, and monitoring of the electric operation of the Federal transmission system. Also includes load, frequency, and voltage control of Federal generating plants; and operation of the system control and data computers at Dittmer and Eastern Control Centers. Operations Standards & Engineering: Includes analyzing system loads, voltage levels, outage information, stability levels and other data, and making policy recommendations for system operations and related affairs. Provides for development of control center requirements for centralized automation of substations and generation and BPA participation with other utilities in developing utility operating standards and guides.

- **Maintenance:** In all aspects of maintenance, Bonneville is shifting to the implementation of reliability-centered maintenance practices. This change is focused on improving system reliability and significantly reducing maintenance costs. Primary maintenance functions include Transmission Line Maintenance: Maintain and repair nearly 24,135 km (14,800 circuit miles) of high voltage transmission lines, of which over 6,436 km (4,000 circuit miles) are 500-kV transmission EHV (extra high voltage), which is two and one-half times more labor-intensive than lower transmission voltages, although more efficient in transmission of power. Substation Maintenance: Provides for service and repair of the transmission system power equipment located at more than 400 work sites annually, and consume over 200 FTE. System Protection Maintenance: Provides for the maintenance of relaying and metering equipment used to control and protect the electrical transmission system and to meter energy transfers for the purpose of revenue billing. Additionally, field engineering services provide technical advice and assure the correct operation of power system relaying and special control systems used to support interregional energy transmission capabilities. Power System Control Maintenance: Provides for the testing, repair, and field engineering support of BPA's highly complex equipment, communications and control systems, including seven major microwave systems and other critical communications and control systems that support the power system. Nonelectric Plant Maintenance: Provides for the maintenance of BPA's nonelectric facilities. Includes site; building, and building utility maintenance; custodial services; station utility; transportation maintenance; and other maintenance service activities on BPA-owned or -leased nonelectric facilities. Maintenance Standards & Engineering: Provides for establishing, monitoring, and updating system maintenance standards, policies, and procedures; and review and update of long-range plans for maintenance of the electric power transmission system.

FY 1995 Accomplishments:

- **Engineering:** A specially assigned team developed a new approach to prioritize R&D efforts, assuring accountability, business results, and early termination of projects not meeting their forecasted target results, schedule, spending range, or application benefit potential. Capital-to-expense transfer was $4.7 million.

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III. Performance Summary (Cont'd)

- **Operations:** The Dispatch Training Facility (DTF) power system model is functional for Supervisory Control and Data Acquisition System (SCADA) and power system training.

- **Maintenance:** Completed reliability-centered maintenance (RCM) pilot at Alvey Substation. Based on lessons learned at Alvey, implemented RCM at Chemawa Substation. Best accomplishment of the target for System Average Interruption Frequency Index (SAIFI) in the 5-year period of FYs 1991-95. BPA achieved 4 or fewer automatic interruptions at 94.3 percent of BPA points of delivery (PODs), against a target of at least 95 percent of PODs. For System Average Interruption Duration Index (SAIDI), BPA achieved 150 minutes or less of automatic interruptions at 93.4 percent of PODs, against a target of 95 percent of PODs. Consolidated management of all training and apprentice programs, to allow for staffing and cost efficiencies. Established 11 O&M regions with a focus on increased customer service and cost management. Clarified maintenance geographic boundaries to better assure responsive customer support.

FY 1996 Accomplishments (to date and planned):

- **Engineering:** Continue activities as described in Performance Summary. Capital-to-expense transfer is expected to be approximately $2 million.

- **Operations:** Continue activities as described in Performance Summary. The Dispatcher Training Facility will be complete and provide full functional modeling of BPA's transmission power system. Transfer of staff and equipment from Eastern Control Center to the Munro Control Center is started.

- **Maintenance:** Continue activities as described in Performance Summary. Plan to implement reliability-centered maintenance (RCM) practices at one-half of Bonneville's 11 O&M regions. Continue to improve performance to meet SAIFI and SAIDI targets (see explanations of targets above).

FY 1997 Planned Accomplishments:

- **Engineering:** Continue activities as described in Performance Summary. Capital-to-expense transfer is expected to be approximately $2 million.

- **Operations:** Continue activities as described in Performance Summary. Munro Control Center fully operational.

- **Maintenance:** Continue activities as described in Performance Summary. Plan to implement reliability-centered maintenance (RCM) practices at remaining one-half of Bonneville's 11 O&M regions. Perform to meet SAIFI and SAIDI targets (see explanations of targets in 1995 accomplishments above).

Explanation of Accrued Expenditures Funding Changes FY 1996 to FY 1997:

The net decrease of $2,000,000 is the result of efforts to reduce costs to minimal levels, most notably in reduced engineering technical investigations and development, and reductions in preventive maintenance in concert with the application of BPA's reliability-centered maintenance concept.

ENVIRONMENT/FISH AND WILDLIFE - OPERATING EXPENSE

I. Mission Supporting Goals and Objectives:

This activity provides for the protection, enhancement and mitigation of Columbia River Basin fish and wildlife losses attributed to the development and operation of hydroelectric projects on the Columbia River and its tributaries pursuant to Section 4(h) of the Pacific Northwest Power Act. BPA discharges a major portion of its fish and wildlife responsibilities and reduces the Administrator's obligation, by funding projects and activities designed to consistent with the Northwest Power Planning Council's Fish and Wildlife Program. BPA is also mandated to implement measures called for under the Endangered Species Act. These measures are part of the Biological Opinions (BO) issued by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) regarding the operations of the Federal Columbia River hydro system. The expenses associated with implementing the reasonable and prudent alternatives of the BOs that relate to BPA's direct fish and wildlife program are included in this budget projection. Additionally, this expense budget reflects, and is consistent with, the fish and wildlife budget agreement announced by the Administration in October 1995 that calls for BPA fish and wildlife expenses of $435 million per year on average for the period FY 1996 through FY 2001.

BPA's fish and wildlife expense funds are directed at activities that increase numbers of Columbia River Basin fish and wildlife resources including projects designed to improve juvenile fish passage at mainstream dams, resource studies, monitoring and evaluation and facility operation and maintenance. The priority for project funding will focus first on implementing the reasonable and prudent alternatives contained in the NMFS and USFWS Biological Opinions and second, on implementing the Council's Fish and Wildlife Program. A current goal of the Power Planning Council, and one supported by BPA, is that all projects funded under both Bonneville's direct program as well as the reimbursable and capital investment components of the other Federal agencies (see Fish and Wildlife Investments Crosscut Tables at front of budget document) will be reviewed and prioritized as part of a Power Planning Council initiative process. It is anticipated that such a process will be examined and considered as part of the Power Planning Council's 180-day review of governance for fish and wildlife within the Federal Columbia River Power System as called for in the FY 1996 Energy and Water Appropriations Act.

A full range of environmental and pollution prevention and abatement activities associated with operation of the Bonneville power system are conducted. The primary components are waste management/minimization, water protection, environmental investigation, and planned facility review.

II. Funding Schedule of Accrued Expenditures:

(Dollars in Thousands)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Anadromous Fish	$ 53,000	$ 66,000	$ 69,000	$ +3,000	+5%
Resident Fish	7,000	8,000	9,000	+1,000	+13%
Wildlife	5,000	21,000	17,000	-4,000	-19%
Fish & Wildlife Operations and Maintenance	9,000	5,000	5,200	200	4%
Subtotal Fish & Wildlife Accrued Expenditures	74,000	100,000	100,000	--	--
Pollution Control & Abatement	3,000	6,000	7,000	+1000	+17%
Total, Environment/Fish & Wildlife - Accrued Expenditures	$ 77,000	$ 106,000	$ 107,000	$ +1,000	+2%
Total Environment, Fish & Wildlife Expense Obligations	$ 36,000	$ 106,000	$ 107,000	$ +1,000	+1%

III. Performance Summary:

FY 1995 Accomplishments:

- **Anadromous Fish:** Implemented Pacific Northwest Power Act responsibilities and Council Fish and Wildlife program funding based on measures installed in FY 1995 and before. Continued implementing projects which support Endangered Species Act listed species and other measures called for under the National Marine Fisheries Service Biological Opinion. Continued to implement and develop downstream migration, disease and predator control programs, artificial production methods, and habitat improvement activities.

- **Resident Fish:** Continued the study of the effects of reservoir operation on the resident fish population. Continue efforts for in-stream flow studies stock status studies, habitat improvement and monitoring and evaluation studies, white sturgeon habitat requirements consistent with Endangered Species Act requirements. Continued activities associated with species under review for possible listing as threatened or endangered under the Endangered Species Act. Continued efforts conducted in FY 1994 and prior years.

- **Wildlife:** Continued wildlife loss assessments and further developed wildlife mitigation plans and initiate wildlife mitigation actions. Initiated actions resulting from the Council's amendments to the Fish and Wildlife Program for Wildlife enhancement.

ENVIRONMENT/FISH AND WILDLIFE - OPERATING EXPENSE (Cont'd)

- **Fish & Wildlife Operations and Maintenance:** Reflects schedule for completed projects entering the O&M phase of implementation and ongoing operations and maintenance for previously completed projects..

- **Pollution Control/Abatement:** Drafted spill prevention, control and countermeasure plans for 50 facilities. Completed underground Injection Source registrations. Conducted groundwater monitoring per agreements with Oregon, Washington, and EPA. Certified all Pollution Prevention and Abatement employees who oversee the application of herbicide. Certified all employees engaged in hazardous waste operations and emergency response. Completed the plan for Interim Status Hazardous waste areas at Ross. Conducted Resource Conservation and Recovery Act and hazardous waste storage area inspections at all maintenance headquarters. Completed all annual state hazardous waste reports.

FY 1996 Accomplishments (to date and planned):

- **Anadromous Fish:** Continue to implement Pacific Northwest Power Act responsibilities and Council Fish and Wildlife program funding based on measures installed in FY 1995 and before. Continue implementing projects which support Endangered Species Act listed species and other measures called for under the National Marine Fisheries Service Biological Opinion. Continue to implement and develop downstream migration, disease and predator control programs, artificial production methods, and habitat improvement activities.

- **Resident Fish:** Continue to study the effects of reservoir operation on the resident fish population. Continue efforts for in-stream flow studies, stock status studies, habitat improvement and monitoring / evaluation studies, white sturgeon habitat requirements consistent with Endangered Species Act requirements. Continue activities associated with species under review for possible listing as threatened or endangered under the Endangered Species Act. Continued efforts conducted in FY 1995 and prior.

- **Wildlife:** Continue the FY 1995 program including funding for wildlife actions resulting from Council Fish and Wildlife Program amendments for wildlife mitigation.

- **Fish & Wildlife Operations and Maintenance:** Reflects schedule of completed projects entering the O&M phase in implementation.

- **Pollution Control/Abatement:** Continue the FY 1995 program of spill prevention, control and implementing countermeasures at necessary sites throughout the Bonneville power system. The activities include: 1) program evaluation and development, 2) environmental planning and review, 3) environmental inventory, 4) investigations, 5) prevention/remedial actions, 6) training, 7) monitoring, and 8) waste management/minimization guidance. These activities support and sustain prudent facility maintenance and accommodate compliance with environmental protection and pollution control statutes. Activities are performed on an ongoing basis and are likely to include occasional pollution incident response on the power system.

FY 1997 Planned Accomplishments:

- **Anadromous Fish:** Continue to implement Pacific Northwest Power Act responsibilities and Council Fish and Wildlife program funding based on measures installed in FY 1996 and before. Continue implementing projects which support Endangered Species Act listed species and other measures called for under the National Marine Fisheries Service Biological Opinion. Continue to implement and develop downstream migration, disease and predator control programs, artificial production methods, and habitat improvement activities.

- **Resident Fish:** Continue to study the effects of reservoir operation on the resident fish population. Continue efforts for in-stream flow studies, stock status studies, habitat improvement and monitoring / evaluation studies, white sturgeon habitat requirements consistent with Endangered Species Act requirements. Continue activities associated with species under review for possible listing as threatened or endangered under the Endangered Species Act. Continued efforts conducted in FY 1995 and prior.

- **Wildlife:** Continue the FY 1996 program including funding for wildlife actions resulting from Council Fish and Wildlife Program amendments in 1990 for wildlife mitigation.

- **Fish & Wildlife Operations and Maintenance:** Reflects schedule of completed projects entering the O&M phase in implementation.

- **Pollution Control/Abatement:** Continue the FY 1996 program of spill prevention, control and implementing countermeasures at necessary sites throughout the Bonneville power system. The activities include: 1) program evaluation and development, 2) environmental planning and review, 3) environmental inventory, 4) investigations, 5) prevention/remedial actions, 6) training, 7) monitoring, and 8) waste management/minimization guidance. These activities support and sustain prudent facility maintenance and accommodate compliance with environmental protection and pollution control statutes. Activities are performed on an ongoing basis and are likely to include occasional pollution incident response on the power system.

Explanation of Funding Changes FY 1996 to FY 1997:

Fish & Wildlife expenses for both FY 1996 and 1997 reflect the Administration's fish and wildlife budget agreement announced in October 1995 and the Pollution & Abatement increase reflects progress into the investigation phase of CERCLA sites.

BONNEVILLE POWER ADMINISTRATION

ASSOCIATED PROJECT COSTS - OPERATING EXPENSE

I. **Mission Supporting Goals and Objectives:**

This program provides funding for power related costs and liabilities of the U.S. Army Corps of Engineers and U.S. Bureau of Reclamation hydroelectric projects in the Pacific Northwest which serve many purposes. Both agencies are emphasizing efficient power production from existing facilities and improvement of the performance and availability of power units. BPA repays additional financing costs of the Federal Columbia River Power System facilities through its Interest Expense and Capital Transfer budget Programs. Pursuant to the Lower Snake River Compensation Plan (LSRCP), BPA is also responsible for the actual operations and maintenance expenditures incurred as part of the LSRCP and repays Treasury accordingly. Bonneville is also responsible for payment of annual payments to the Confederated Tribes of the Colville Reservation for their claims concerning their contribution to the production of hydropower by the Grand Coulee Dam in accordance with the Settlement Agreement between the United States and the Tribes (April, 1994). These payments in effect are equivalent to a share of the revenues from the Grand Coulee Dam.

II. **Funding Schedule of Accrued Expenditures:** (Dollars in Thousands)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Bureau of Reclamation O&M	$ 27,000	$ 35,000	$ 35,000	$ --	--
Corps of Engineers O&M	84,000	73,000	73,000	--	--
Lower Snake River Compensation Plan (LSRCP) O&M	13,000	13,000	16,000	+3,000	23%
Colville Settlement	--0	15,000	15,000	--	--
Total Associated Project Costs - Accrued Expenditures	$ 124,000	$ 136,000	$ 139,000	$ +3,000	2%
Bureau of Reclamation Amortization Obligation	2,000	18,000	15,000	-3,000	-17%
Bureau Irrigation Assistance	--0	--0	25,000	+25,000	
Total Associated Project Costs	$ 126,000	$ 154,000	$ 179,000	$ +26,000	17%

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III. Performance Summary:

FY 1995 Accomplishments:

- Continued support Federal Columbia River Power System (FCRPS) project costs and work to improve relationships to improve project support and better understand project costs. This helps to maintain FCRPS system integrity and the attainment of BPA's strategic business objectives.

FY 1996 Accomplishments:

- Continue to support FCRPS project costs and work to improve relationships to improve project support and better understand project costs. This helps to maintain FCRPS system integrity and the attainment of BPA's strategic business objectives.
- Initiate compensation payments to the Confederated Colville Tribes.

FY 1997 Planned Accomplishments:

- Continue support of FCRPS project costs and improve relationships to improve project support and better understand project costs. This helps to maintain FCRPS system integrity and the attainment of BPA's strategic business objectives.
- Continue Bureau O&M project cost support through a direct funding agreement.
- Continue Corps O&M project cost support.
- Continue compensation payments to the Confederated Colville Tribes.

Explanation of Accrued Expenditures Funding Changes FY 1996 to FY 1997:

The increase of $ 3,000,000 in accrued expenditures reflects increased LSRCP O&M. Obligations increase for Bureau amortization and scheduled irrigation repayment assistance.

BONNEVILLE POWER ADMINISTRATION

INTEREST - OPERATING EXPENSE

I. Mission Supporting Goals and Objectives:

The Federal Columbia River Transmission System Act, as amended by the Pacific Northwest Power Act, and replenished by Public Law 98-50, provided borrowing authority of $3.75 billion to assist in financing the construction, acquisition, and replacement of the transmission system and to implement the Administrator's authority pursuant to the Pacific Northwest Power Act, including his authority to provide conservation measures, renewable resources and fish and wildlife. This item covers the payment of interest to the U.S. Treasury on borrowings and interest on appropriations for FCRPS investments. Interest estimates are a direct function of capital investment program levels and estimates of new plant in service. These estimates of interest payments will be updated following completion of BPA's Supplemental Rate Proposal process and finalized when BPA's proposed rates are filed with FERC. The rates are expected to be in effect at the beginning of FY 1997.

II. Funding Schedule of Accrued Expenditures: **(Dollars in Thousands)**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
BPA Bond Interest (Net)	$ 168,000	$ 144,000	$ 150,000	$ +6,000	+4%
BPA Appropriation Interest	55,000	57,000	59,000	+2,000	4%
Corps of Engineers Appropriation Interest	141,000	132,000	137,000	+5,000	4%
Lower Snake River Compensation Plan Interest	3,000	16,000	17,000	+1,000	6%
Bureau of Reclamation Appropriation Interest	31,000	30,000	31,000	+1,000	3%
Total Interest - Accrued Expenditures	$ 398,000	$ 379,000	$ 394,000	$ 15,000	4%
Total Interest - Obligations	$ 398,000	$ 379,000	$ 394,000	$ 15,000	4%

Explanation of Accrued Expenditures Funding Changes FY 1996-FY 1997:

Interest costs increase in FY 1997 to meet interest costs of existing and planned additions to capital investments in service by that year. Funding requirements reflect the repayment studies of BPA's FY 1996 Supplemental Rate Proposal. These estimates will be revised based upon funding requirements reflected in BPA's Final 1996 Rate Proposal later this year. The new rates from the 1996 rate case are expected to be in place at the start of FY 1997.

BONNEVILLE POWER ADMINISTRATION

PLANNING COUNCIL - OPERATING EXPENSE

I. **Mission Supporting Goals and Objectives:**

This activity provides for the operation of the Pacific Northwest Power and Planning Council (Council). The Pacific Northwest Act directs that expenses of the Council (subject to certain limits based on forecasted BPA power sales) shall be included in BPA's annual budget to Congress. Funding for the Council is provided by Bonneville and is recovered through Bonneville rates. It major activities center around the periodic preparation of a northwest Conservation and Electric Power Plan (a 20 year electric energy demand and resources forecast and energy conservation program) and a Columbia River Basin Fish and Wildlife Program of loss mitigation and resource enhancement actions.

II. **Funding Schedule of Accrued Expenditures:** **(Dollars in Thousands)**

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Planning Council	$ 8,000	$ 8,000	$ 8,000	$ --	--%
Total Planning Council - Operating Expense	$ 8,000	$ 8,000	$ 8,000	$ --	--%
Total Planning Council Obligations	$ 8,000	$ 8,000	$ 8,000		

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REIMBURSABLE

I. Mission Supporting Goals and Objectives:

This program consists of commodities, work or services furnished by BPA to Federal and non-Federal entities for which funds are received and credited to the Bonneville Fund. The projects must be beneficial under the one utility concept, to BPA operations and the Federal or non-Federal entity involved and contribute to more efficient or reliable construction, operation and maintenance of the Federal transmission system or otherwise enhance electric service to the region. The FERC Coordination Agreement payment is a reimbursable activity in which BPA serves as an agent for non-Federal hydro operators for the collection of funds due to the U.S. Treasury pursuant to Section 10(f) of the Federal Power Act and the Pacific Northwest Coordination Agreement.

II. Funding Schedule of Accrued Expenditures: (Dollars in Thousands)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Short-Term Power Purchases	$ 12,000	$ --	$ --	$ --	--
Work Done for Others	26,000	16,000	14,000	-2,000	-13%
Federal Energy Regulatory Commission (FERC) Coordination Agreement	3,000	4,000	4,000	--	--
Total, Reimbursable Accrued Expenditures	$ 41,000	$ 20,000	$ 18,000	$ -2,000	-10%
Total Reimbursable Obligations Expenditures	$ 41,000	$ 20,000	$ 18,000	$ -2,000	-10%

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III. Performance Summary:

FY 1995 Accomplishments:

- **Short-term Power Purchases:** Purchased power for the Service Exchange Agreement and the Industrial Replacement Energy (IRE) Agreement.
- **Work Done For Others:** Provided construction, operation and maintenance of transmission system facilities and related utility and general support for customers and other entities.
- **FERC Coordination Agreement:** Made payments to the General Fund of the Treasury which FERC determines are due the Federal Government pursuant to Section 10(f) of the Federal Power Act for downstream benefits realized at non-Federal hydroelectric projects as a result of storage releases from upstream Federal reservoirs. BPA makes payments on behalf of the non-Federal operators and in accordance with the Pacific Northwest Coordination Agreement. These Treasury payments offset a portion of the amount BPA owes for O&M expenses at the relevant Corps of Engineers and Bureau of Reclamation projects.

FY 1996 Accomplishments (to date and planned):

- **Short-term Power Purchases:** No purchases are anticipated for the IRE on a reimbursable basis after 1995 because of the new rate structure and contracts negotiated with industrial customers. (This number may be revised later based on the 1996 rate proposal currently in process.)
- **Work Done For Others:** Continue activities in FY 1996 as described for FY 1995.
- **FERC Coordination Agreement:** Continue activities in FY 1996 as described for FY 1995.

FY 1997 Planned Accomplishments:

- **Short-term Power Purchases:** Continue activities in FY 1997 as described for FY 1996.
- **Work Done For Others:** Continue activities in FY 1997 as described for FY 1996.
- **FERC Coordination Agreement:** Continue activities in FY 1997 as described for FY 1996.

Explanation of Funding Changes FY 1996 to FY 1997:

The decrease of $2,000,000 is the result of anticipated lower reimbursable transmission services construction and maintenance work to be done on other utilities' facilities. This program, which is not a revenue requirement of BPA's electric rates because it is funded by benefiting entities typically forecasts reduced out-year costs because the program's funding for out-years is based primarily on firm expectations of service demand. Current year funding will be adjusted to meet actual demand for service by requesting entities.

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BONNEVILLE POWER ADMINISTRATION

CAPITAL TRANSFERS

I. **Mission Supporting Goals and Objectives:**

This activity conveys funds to the U.S. Treasury for repayment of certain Federal Columbia River Power System costs not included in the Associated Project Costs budget. Since capital transfers are cash transactions they are not considered budget obligations.

II. **Funding Schedule:**

(Dollars in Thousands)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
BPA Bond Amortization	$ 222,000	$ 259,000	$ 257,000	$ -2,000	-1%
3rd AC Non-Federal participant (one-time) Payment	156,000				
BPA Appropriation Amortization	0	3,000	0	-3,000	- -
Corps Appropriation Amortization	98,000	5,000	6,000	+1,000	20%
Total, Capital Transfers	$ 476,000	$267,000	$263,000	$-4,000	-1%

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TREASURY PAYMENTS
(in millions of dollars)

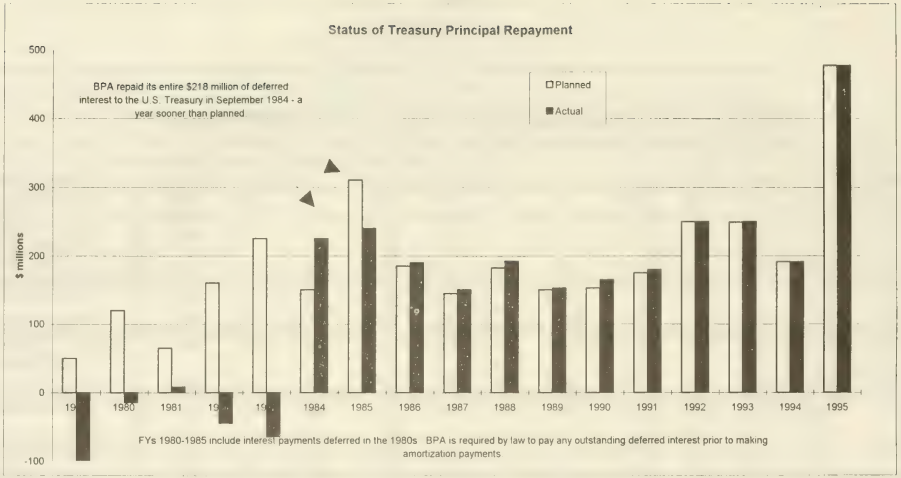
		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
A.	**INTEREST ON BONDS & APPROPRIATIONS**							
	Bonneville Bond Interest							
1	Bonneville Bond Interest (net)	168	144	150	150	146	143	147
2	AFUDC 1/	0	0	15	16	11	14	18
	Appropriations Interest							
3	Bonneville	55	57	59	59	58	57	56
4	Corps of Engineers 2/	141	132	137	147	155	159	177
5	Lower Snake River Comp. Plan	3	16	17	17	17	17	17
6	Bureau of Reclamation Interest	31	30	31	32	33	32	30
7	**Total Bond and Approp. Interest 3/**	**398**	**379**	**409**	**421**	**420**	**422**	**445**
B.	**ASSOCIATED PROJECT COST**							
8	Bureau of Reclamation Amortization	2	0	15	7	22	28	51
9	Bureau of Reclamation Irrigation Assistance	0	0	25	0	0	0	10
10	Bureau of Rec. Operations & Maint	27	35	35	38	40	41	43
11	Corps of Eng. Operations & Maintenance	84	73	73	80	82	85	91
12	L. Snake River Comp. Plan Oper.	13	12	15	16	17	18	18
13	Colville Settlement		15	16	16	17	18	19
14	**Total Assoc. Project Costs**	**126**	**135**	**179**	**141**	**161**	**172**	**213**
C.	**CAPITAL TRANSFERS**							
	Amortization							
15	Bonneville Bonds	222	259	257	241	149	149	88
16	Third AC - Non-Federal Participant Pmt. 4/	156	0	0	0	0	0	0
17	Corps of Engineers	98	5	6	0	5	45	35
18	Lower Snake River Comp. Plan	0	0	0	0	0	0	0
19	Bonneville Appropriations	0	3	0	37	45	25	56
20	**Total Capital Transfers**	**476**	**267**	**263**	**278**	**199**	**219**	**179**
21	**TOTAL TREASURY PAYMENTS (LINES 7 + 14 + 20)**	**1,000**	**781**	**851**	**840**	**780**	**813**	**837**

1/ This interest cost is capitalized and included in Bonneville's Transmission Services and Associated Projects Capital programs. AFUDC is financed through the sale of bonds.

2/ Includes interest on construction funding for Corps of Engineers (Corps) fish bypass facilities at Corps dams in the Columbia River Basin, including Lower Monumental, Ice Harbor, and The Dalles dams, as called for in the Fish Spillway Memorandum of Agreement approved on April 10, 1989.

3/ Total Bond and Appropriated Interest on this table differs from the amount shown in the Interest Program by the AFUDC amount as well as by the cash vs. accrual difference for FY 1995.

4/ Includes a $156 million capital transfer in FY 1995 representing an unscheduled amortization payment connected with receipts from sale of capacity to non-Federal participants in the AC Intertie transmission lines.


Status of Treasury Principal Repayment
BPA repaid its entire $218 million of deferred interest to the U.S. Treasury in September 1984 - a year sooner than planned
Planned
Actual
$ millions
500
400
300
200
100
0
-100
1980
1981
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
FYs 1980-1985 include interest payments deferred in the 1980s BPA is required by law to pay any outstanding deferred interest prior to making amortization payments

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FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION
BPA STATUS of BORROWING
(in millions of dollars)

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	FY 1995				FY 1996				FY 1997			
	Capital Obligations	Annual Borrowing Authority	Capital Expend.	Treasury Borrowing	Capital Obligations	Annual Borrowing Authority	Capital Expend.	Treasury Borrowing	Capital Obligations	Annual Borrowing Authority	Capital Expend.	Treasury Borrowing
Cum. - Start-of-Year: 1974 Act	2,079		1,983		1,995		1,916		2,096		2,027	
Start-of-Year: 1980 Act	751		669		744		677		739		671	
Start-of-Year: Total	2,830	2,788	2,652	2,616	2,739	2,697	2,593	2,563	2,835	2,793	2,698	2,584
Plus: Annual Increase 1/												
Annual Increase: 1974 Act	228		245		250		260		233		239	
Annual Increase: 1980 Act	59		74		105		104		54		75	
Annual Borrowing A. Increase	287	287	319		355	355	364		287	287	314	
Treasury Borrowing (Cash)				325				280				194
Less:												
Bond Amortization: 1974 Act	312		312		149		149		175		175	
Bond Amortization: 1980 Act	66		66		110		110		82		82	
Total BPA Bond Amortization 2/	378	378	378	378	259	259	259	259	257	257	257	257
Net Increase/(Decrease):												
1974 Act	(84)		(67)		101		111		58		64	
1980 Act	(7)		8		(5)		(6)		(28)		(7)	
Total	(91)	(91)	(59)	(53)	96	96	105	21	30	30	57	(62)
Cum. - End-of-Year: 1974 Act	1,995		1,916		2,096		2,027		2,154		2,091	
End-of-Year: 1980 Act	744		677		739		671		711		664	
End-of-Year: Total	2,739	2,697	2,593	2,563	2,835	2,793	2,698	2,584	2,865	2,823	2,755	2,521
Remaining Leg. Borrowing A.:												
1974 Act	505				404				346			
1980 Act	506				511				539			
Total Borrowing Authority	1,011	1,053		1,187	915	957		1,167	885	927		1,229
Total Legislated Borrowing A.	3,750	3,750		3,750	3,750	3,750		3,750	3,750	3,750		3,750

1/ FY 1995 is actuals. FY 1996-2001 are based on the FY1997 Congressional Budget Submittal.
Bonneville is exploring options with its customers and constituents to reduce its level of debt financing in order to both delay the exhaustion of the borrowing authority caps and improve Bonneville's debt-equity position. The options under consideration include: a) further reductions in capital spending through application of a capital budgeting process, b) revenue financing of roughly $15 million of transmission capital and $15 million of fish & wildlife capital per year, c) to the extent allowable, potentially shifting costs from the Transmission /Fish & Wildlife authority to the Conservation authority, and d) exploring alternative sources of capital, including the use of third-party financing to the greatest extent possible. The options to be adopted will be determined through process of developing the 96 Rate Case in May.

2/ FY 1995 is actual. FY 1996-2001 are based on the 1996 Supplemental Rate Proposal and will be updated following completion of Bonneville's 1996 rate case in May.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION
BPA STATUS of BORROWING
(in millions of dollars)

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	FY 1998				FY 1999				FY 2000			
	Capital Obligations	Annual Borrowing Authority	Capital Expend.	Treasury Borrowing	Capital Obligations	Annual Borrowing Authority	Capital Expend.	Treasury Borrowing	Capital Obligations	Annual Borrowing Authority	Capital Expend.	Treasury Borrowing
Cum. - Start-of-Year: 1974 Act	**2,154**		**2,091**		**2,284**		**2,221**		**2,418**		**2,355**	
Start-of-Year: 1980 Act	**711**		**664**		**665**		**618**		**706**		**659**	
Start-of-Year: Total	2,865	2,823	2,755	2,521	2,949	2,907	2,839	2,499	3,124	3,082	3,014	2,573
Plus: Annual Increase 1/												
Annual Increase: 1974 Act	**272**		**272**		**283**		**283**		**364**		**364**	
Annual Increase: 1980 Act	**52**		**52**		**41**		**41**		**31**		**31**	
Annual Borrowing A. Increase	324	324	324		324	324	324		395	395	395	
Treasury Borrowing (Cash)				218				223				271
Less:												
Bond Amortization: 1974 Act	**142**		**142**		**149**		**149**		**149**		**149**	
Bond Amortization: 1980 Act	**99**		**99**		**0**		**0**		**0**		**0**	
Total BPA Bond Amortization 2/	240	240	240	240	149	149	149	149	149	149	149	149
Net Increase/(Decrease):												
1974 Act	**130**		**130**		**134**		**134**		**215**		**215**	
1980 Act	**(47)**		**(47)**		**41**		**41**		**31**		**31**	
Total	84	84	84	(22)	175	175	175	74	246	246	246	122
Cum. - End-of-Year: 1974 Act	**2,284**		**2,221**		**2,418**		**2,355**		**2,633**		**2,570**	
End-of-Year: 1980 Act	**665**		**618**		**706**		**659**		**737**		**690**	
End-of-Year: Total	2,949	2,907	2,839	2,499	3,124	3,082	3,014	2,573	3,370	3,328	3,260	2,695
Remaining Leg. Borrowing A.:												
1974 Act	**216**				**82**				**(133)**			
1980 Act	**585**				**544**				**513**			
Total Borrowing Authority	801	843		1,251	627	669		1,177	380	422		1,055
Total Legislated Borrowing A.	3,750	3,750		3,750	3,750	3,750		3,750	3,750	3,750		3,750

1/ FY 1995 is actuals. FY 1996-2001 are based on the FY1997 Congressional Budget Submittal.
Bonneville is exploring options with its customers and constituents to reduce its level of debt financing in order to both delay the exhaustion of the borrowing authority caps and improve Bonneville's debt-equity position. The options under consideration include: a) further reductions in capital spending through application of a capital budgeting process, b) revenue financing of roughly $15 million of transmission capital and $15 million of fish & wildlife capital per year, c) to the extent allowable, potentially shifting costs from the Transmission /Fish & Wildlife authority to the Conservation authority, and d) exploring alternative sources of capital, including the use of third-party financing to the greatest extent possible. The options to be adopted will be determined through process of developing the 96 Rate Case in May.
2/ FY 1995 is actual. FY 1996-2001 are based on the 1996 Supplemental Rate Proposal and will be updated following completion of Bonneville's 1996 rate case in May.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION
BPA STATUS of BORROWING
(in millions of dollars)

BP-4C

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	FY 2001			
	Capital Obligations	Annual Borrowing Authority	Capital Expend.	Treasury Borrowing
Cum. - Start-of-Year: 1974 Act	2,633		2,570	
Start-of-Year: 1980 Act	737		690	
Start-of-Year: Total	3,370	3,328	3,260	2,695
Plus: Annual Increase 1/				
Annual Increase: 1974 Act	413		413	
Annual Increase: 1980 Act	13		13	
Annual Borrowing A. Increase	426	426	426	
Treasury Borrowing (Cash)				0
Less:				
Bond Amortization: 1974 Act	88		88	
Bond Amortization: 1980 Act	0		0	
Total BPA Bond Amortization 2/	88	88	88	88
Net Increase/(Decrease):				
1974 Act	325		325	
1980 Act	13		13	
Total	338	338	338	(88)
Cum. - End-of-Year: 1974 Act	2,958		2,895	
End-of-Year: 1980 Act	750		703	
End-of-Year: Total	3,708	3,666	3,598	2,608
Remaining Leg. Borrowing A.:				
1974 Act	(458)			
1980 Act	500			
Total Borrowing Authority	42	84		1,143
Total Legislated Borrowing A.	3,750	3,750		3,750

1/ FY 1995 is actuals. FY 1996-2001 are based on the FY1997 Congressional Budget Submittal.
Bonneville is exploring options with its customers and constituents to reduce its level of debt financing in order to both delay the exhaustion of the borrowing authority caps and improve Bonneville's debt-equity position. The options under consideration include: a) further reductions in capital spending through application of a capital budgeting process, b) revenue financing of roughly $15 million of transmission capital and $15 million of fish & wildlife capital per year, c) to the extent allowable, potentially shifting costs from the Transmission /Fish & Wildlife authority to the Conservation authority, and d) exploring alternative sources of capital, including the use of third-party financing to the greatest extent possible. The options to be adopted will be determined through process of developing the 96 Rate Case in May.
2/ FY 1995 is actual. FY 1996-2001 are based on the 1996 Supplemental Rate Proposal and will be updated following completion of Bonneville's 1996 rate case in May.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION
BPA CASH FLOW
(in millions of dollars)

BP-5 FRB 06-Mar-96

BPA Cash From Current Year Operations	FY 1995 /1	FY 1996 /1	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
1. Net Revenues 2/	99	187	59	124	73	46	(25)
2. Expenses Not Requiring Cash	255	255	291	307	320	332	346
3. Adjustments to a Cash Basis	88	15	(4)	(4)	(4)	(4)	(4)
4. Cash Provided by Operating Activities	442	457	346	428	390	375	318
5. Amortization of BPA Bonds	(378)	(261)	(259)	(257)	(241)	(149)	(149)
6. Amortization of Appropriations/Irrigation Assist.	(100)	(25)	(43)	(51)	(43)	(125)	(45)
7 Current Year Cash Surplus/(Deficit)	(36)	172	44	120	106	101	124
BPA Cash Balance							
8. Beginning Cash Balance	196	166	340	300	300	300	300
9. Current Year Cash Surplus (/Deficit)	(36)	172	44	120	106	101	124
10. Cash Used for Investment Activities 3/	(319)	(364)	(364)	(314)	(324)	(324)	(395)
11. Cash From Borrowing 4/	325	366	280	194	218	223	271
12. Ending Cash Balance 4/	**166**	**340**	**300**	**300**	**300**	**300**	**300**
13. Deferred Borrowing Available 4/	30	0	0	120	226	326	450
14. Total Reserves 4/	**196**	**340**	**300**	**420**	**526**	**626**	**750**

1/ Reflects BPA portion of Federal Columbia River Power Systems (FCRPS) final audited results.
2/ FY 1996 net revenue estimate is based on the 4th Quarter Review. FY 1997-2001 planned net revenues are based on the Supplemental Rate Proposal for the 1998 rate case. Actual revenues are very uncertain and are heavily influenced by customer firm loads and aluminum prices; runoff volume and constraints on operations of hydroelectric facilities in the Columbia basin; fossil fuel prices; thermal plant performance and costs; etc.
3/ Represents capital expenditures. Includes capitalized bond premiums and actual retirements.
4/ Bonneville's policy is to limit Treasury borrowing to the lower of 1) estimated cumulative capital expenditures or 2) cumulative annual borrowing authority that has been apportioned and obligated. "Deferred Borrowing Available" (line 13) reflects the amount that Bonneville could borrow under these limits. Actual Treasury borrowing (line 11) and Ending borrowing authority cap will be increased.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION
CURRENT SERVICES (Obligations)

PROGRAM & FINANCING SUMMARY

(in millions of dollars)

6-Mar-96

Identification Code: 89-4045-0-3-271

		1995 act.	1996 est.	1997 est.	1998 est.	1999 est.	2000 est.	2001 est.
	Program by activities:							
	Operating expenses:							
0.01	Residential Exchange 1/	1,007	976	1,140	1,060	1,080	1,033	1,139
0.02	Marketing, Conservation & Production	1,037	1,197	1,105	1,141	1,200	1,208	1,198
0.03	Transmission Services	139	148	146	151	157	163	170
0.04	Planning Council	8	8	8	9	9	9	10
0.05	Interest	398	379	394	405	410	408	426
0.06	Environment\Fish & Wildlife	36	105	107	99	97	96	108
	Associated Project Costs:							
0.20	Bureau of Reclamation	26	35	51	44	62	69	95
0.21	Colville Settlement	0	15	16	17	17	18	19
0.22	Corps of Engineers	100	73	73	80	82	85	91
0.23	U.S. Fish & Wildlife Service	0	13	15	16	17	18	18
0.91	**Total operating expenses 1/**	**2,751**	**2,949**	**3,055**	**3,022**	**3,131**	**3,107**	**3,274**
	Capital investment:							
01.01	Marketing, Conservation & Production	59	105	54	52	41	31	13
01.02	Transmission Services	150	165	163	208	200	262	308
01.03	Associated Projects	18	31	18	13	36	54	56
01.04	Environment\Fish & Wildlife	43	41	40	39	34	35	35
01.05	Capital Equipment	17	13	12	12	13	13	14
01.06	Capitalized Bond Premiums	0	0	0	0	0	0	0
01.07	**Total capital investment 2/**	**287**	**355**	**287**	**324**	**324**	**396**	**426**
02.01	Reimbureable program	41	20	18	16	17	14	18
10.00	**Total obligations**	**3,079**	**3,324**	**3,360**	**3,362**	**3,472**	**3,516**	**3,718**

1/ Reflects expensed obligations, not accrued expenses.
2/ Reflects capital obligations, not capital expenditures.

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Program and Financing (continued)

		1995 act.	1996 est.	1997 est	1998 est	1999 est	2000 est	2001 est
	Financing:							
21.90	Unobligated balance available, start of year: Treasury balance 3/	(29)	(144)	(143)	(143)	(143)	(143)	(143)
24.90	Unobligated balance available, end of year: Treasury balance 3/	144	143	143	143	143	143	143
25.00	Unobligated balance lapsing	0	0	0	0	0	0	0
39.00	**Budget authority (gross)**	**3,194**	**3,323**	**3,360**	**3,362**	**3,472**	**3,516**	**3,718**
	Budget Authority:							
67.15	Permanent Authority: Authority to borrow (indefinite) 4/	287	214	271	256	216	238	390
68.00	Spending authority from off-setting collections	3,383	3,376	3,352	3,384	3,455	3,497	3,507
68.47	Portion applied to debt reduction 5/	(476)	(267)	(263)	(278)	(199)	(219)	(179)
68.90	**Spending authority from offsetting collections (adjusted)**	**2,907**	**3,109**	**3,089**	**3,106**	**3,256**	**3,278**	**3,328**
	Relation of obligations to outlays:							
71.00	Total obligations	3,079	3,324	3,360	3,362	3,472	3,516	3,718
	Obligated balance, start of year:							
72.47	Authority to borrow	206	168	159	132	132	132	132
72.90	Treasury balance 3/	167	22	22	22	22	22	22
	Obligated balance, end of year:							
74.47	Authority to borrow	(168)	(159)	(132)	(132)	(132)	(132)	(132)
74.90	Treasury balance 3/	(22)	(22)	(22)	(22)	(22)	(22)	(22)
87.00	Outlays (gross)	3,262	3,333	3,387	3,362	3,472	3,516	3,718
	Adjustments to budget authority and outlays:							
	Deductions for offsetting collections:							
88.00	Federal funds	(89)	(90)	(90)	(90)	(90)	(90)	(90)
88.40	Non-Federal sources	(3,294)	(3,286)	(3,262)	(3,294)	(3,365)	(3,407)	(3,417)
88.90	Total, offsetting collections	(3,383)	(3,376)	(3,352)	(3,384)	(3,455)	(3,497)	(3,507)
89.00	**Budget authority (net)**	**(189)**	**(53)**	**8**	**(22)**	**17**	**19**	**211**
90.00	**Outlays (net)**	**(121)**	**(43)**	**35**	**(22)**	**17**	**19**	**211**

3/ FY 1996-2001 Treasury balance and unobligated balance estimates assume that BPA will borrow the amount needed to finance the full capital program. Actual Treasury borrowing and cash balances will be different, depending on net revenues, Treasury interest rates, and other cash management factors. Borrowing could be higher such that cash balances at the end of each year could equal total reserves.

4/ The Permanent Authority: Authority to borrow (indefinite) amount for FYs 1996-2001 reflects both BPA's capital program financing needs and either the use of, or creation of, deferred borrowing. Deferred borrowing is created when, as a cash and debt management decision, BPA uses cash from revenues to liquidate capital obligations in lieu of borrowing. This temporary use of cash on hand instead of borrowed funds creates the ability in future years to borrow money, when necessary or fiscally prudent, to finance normally revenue funded activities. Technical Executive Branch budget display and tracking requirements have modified the way BPA shows this deferred borrowing as a resource carried forward from year-to-year. This amount must therefore be added to, or subtracted from, BPA's current year borrowing authority amount, making this number a combination of capital program financing needs and the annual use, or creation of deferred borrowing. The FY 1989 Energy and Water Development Appropriations Act (P.L. 100-371 of 7/19/88) clarified that BPA has authority to incur obligations in excess of borrowing authority and cash in the BPA Fund. The two amounts which comprise the net amount on line 67.15 above are as follows:

Borrowing Authority:	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
to finance capital obligations	287	355	287	324	324	396	426
to finance other obligations	0	(141)	(16)	(68)	(108)	(157)	(36)
Total Borrowing Authority (67.15)	**287**	**214**	**271**	**256**	**216**	**238**	**390**

5/ Includes amortization of BPA and Corps of Engineers appropriations and amortization of BPA bonds. Line 68.47 is referred to as capital transfers on BP-3.

PROGRAM AND PERFORMANCE

The Bonneville Power Administration (Bonneville) is the Federal electric power marketing agency in the Pacific Northwest. Bonneville markets hydroelectric power from 21 multipurpose water resource projects of the U.S. Army Corps of Engineers and 9 projects of the U.S. Bureau of Reclamation, plus some energy from non-Federal generating projects in the region. These generating resources and Bonneville's transmission system, planned by the end of FY 1997 to consist of an estimated 14,800 circuit-miles of high-voltage transmission lines and 400 substations, are operated as an integrated power system with operating and financial results combined and reported as the Federal Columbia River Power System (FCRPS). Bonneville is the largest power wholesaler in the Northwest and provides about one-half of the region's electric energy supply and about four-fifths of the region's electric power transmission capacity.

Bonneville is responsible for meeting the net firm power requirements of its requesting customers through a variety of means, including energy conservation programs, acquisition of renewable and other resources, and power exchanges with utilities both inside and outside the region.

Bonneville will finance its operations on the basis of the self-financing authority provided by the Federal Columbia River Transmission System Act of 1974 (Transmission Act) (Public Law 93-454) and the new borrowing authority provided by the Pacific Northwest Electric Power Planning and Conservation Act (Pacific Northwest Power Act) (Public Law 96-501) for energy conservation, renewable energy resources, and capital fish facilities. Authority to borrow is available to the Bonneville on a permanent, indefinite basis. The amount of borrowing outstanding at any time cannot exceed $3.75 billion.

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Operating Expenses:

Marketing, Conservation & Production: Provides for the orderly planning, contractual acquisition, and oversight of reliable, cost-effective resources, including fuel switching and conservation measures. Provides for forecasting regional demand; negotiating power sales and wheeling contracts, billing, and servicing these contracts; reviewing and establishing wholesale power and wheeling rates; and scheduling of power. These resources are needed to serve BPA's portion of the region's forecasted net electric load requirements.

Residential Exchange: Provides for extending the benefits of low-cost Federal power to the residential and small farm customers of investor-owned and publicly-owned utilities in accordance with the Pacific Northwest Power Act.

Transmission Services: Provides funding from revenues for electric transmission research and development and program support of the capital investment program described below for transmission services. Provides for operating an estimated 14,800 miles of line and 400 substations and for *maintaining* the facilities and equipment of the Bonneville transmission system in 1997.

Environment/Fish and Wildlife: Provides the annual expenses for environmental activities, and protection, mitigation and enhancement of fish and wildlife affected by Federal hydroelectric facilities on the Columbia River and its tributaries, in accordance with the Pacific Northwest Power Act.

Planning Council: Provides for activities of the Pacific Northwest Electric Power and Conservation Planning Council required by the Pacific Northwest Power Act.

Interest: Provides for payments to the U.S. Treasury for interest on borrowings to finance Bonneville's transmission services, conservation, capital equipment, environment, fish and wildlife, and associated projects capital programs under $3.75 billion borrowing authority provided

by the Transmission Act as amended by the Pacific Northwest Power Act and replenished by Public Law 98-50. This category also includes interest on Corps of Engineers, Bonneville, and U.S. Bureau of Reclamation appropriated debt.

Associated Project Costs: Provides for repayment of the operation and maintenance (O&M) costs of the 30 U.S. Army Corps of Engineers and U.S. Bureau of Reclamation power generating projects, amortization on the U.S. Bureau of Reclamation capital investment in power generating facilities, and irrigation assistance at Bureau facilities.

Reimbursables: Provides for reimbursable power purchases, and for services such as construction, operation and maintenance of transmission facilities when requested and financed by other entities. Also includes the coordination agreement payments to the Federal Energy Regulatory Commission.

Capital Investments:

Marketing, Conservation & Production: Provides for funding of cost-effective conservation measures.

Transmission Services.: Provides for the planning, design and construction of transmission lines, substation and control system additions, replacements, and enhancements to the FCRPS transmission system for a reliable, efficient and cost-effective regional transmission system. During FY 1997, Bonneville plans to complete construction of Bellingham Area and South Seattle-Olympia Reinforcement facilities and continue preliminary engineering of the eastern Canadian Intertie (Coulee-Oliver) along with engineering and construction of a variety of upgrades and additions to existing facilities. Provides for planning, design, and construction work to repair or replace existing transmission lines, substations, control systems, and general facilities of the FCRPS transmission system.

Capital Equipment: Provides for general purpose ADP equipment, office furniture and equipment, and capital software development in support of all Bonneville programs.

Environment/Fish and Wildlife: Provides for capital investments to implement environmental activities, and to protect, mitigate and enhance the fish and wildlife affected by Federal hydroelectric facilities on the Columbia River and its tributaries, in accordance with the Pacific Northwest Power Act.

Associated Projects - Capital: Provides for direct funding of additions, improvements, and replacements at existing Federal hydroelectric projects in the Northwest. Bonneville's FY 1997 budget includes direct funding for four Bureau of Reclamation projects and one Corps of Engineers project.

Contingencies: Although contingencies are not specifically funded, the need may arise to provide for purchase of power in low-water years; for repair and/or replacement of facilities affected by natural and human-made emergencies, including the resulting additional costs for contracting, construction, and operation and maintenance work; for unavoidable increased costs for the planned program due to necessary but unforeseen adjustments, including engineering and design changes, contractor and other claims and reallocations; or for payment of a retrospective premium adjustment in excess nuclear property insurance.

Financing: The Transmission Act provides for the use by Bonneville of all receipts, collections, and recoveries in cash from all sources, including the sale of bonds, to finance the annual budget programs of Bonneville. These receipts result primarily from the sale of power and wheeling services. The Transmission Act also provides for authority to borrow from the U.S. Treasury at rates comparable to open market rates for similar issues. As amended by the Pacific Northwest Power Act and replenished by Public Law 98-50, it allows for $3.75 billion of borrowing to be outstanding at any

time. The fiscal year 1996 capital program obligations are estimated to be $287 million. To the extent BPA capital borrowing authority is insufficient in 1997, BPA would use cash reserves generated by revenues from customers, if available, to finance some of these investments.

In 1995, Bonneville made payments to the Treasury of $1,000 million and also expects to make payments of $800 million in 1996 and $851 million in 1997. The 1997 payment will be distributed as follows: U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, and U.S. Fish and Wildlife Service O&M ($123 million),Colville Settlement ($16 million), interest expense on bonds and appropriations ($394 million), allowance for funds used during construction--capitalized interest ($15 million), and amortization ($278 million), and irrigation assistance ($25 million).

Operating results: Total revenues and reimbursements are forecast at approximately $3.4 billion in 1997.

It should be noted that Bonneville's revenue forecasts are based on several critical assumptions about both the supply of and demand for Federal energy. During the operating year, deviation from the conditions assumed in a rate case may result in a variation in actual revenues of several hundred million dollars from the forecast.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION FUND
CURRENT SERVICES

A-11-15A

ANALYSIS OF RESOURCES

(in thousands of dollars)

Budget Account: 89-4045-0-3-271

	FY 1995	FY 1996	FY 1997 Agency Submittal
Budget Authority (net)	(189,000)	(53,000)	8,000
Outlays (net)	(121,000)	(43,000)	35,000
Full-time equivalent employment (workyears):	3,313	3,272	3,272

	FY 1998	FY 1999	FY 2000	FY 2001
Budget Authority (net)	(22,000)	17,000	19,000	211,000
Outlays (net)	(22,000)	17,000	19,000	21,000

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STATUS OF DIRECT LOANS

(in thousands of dollars)

Budget Account: 89-4045-0-3-271

		1995 actual	1996 est.	1997 est.	1998 est.	1999 est.	2000 est.	2001 est.
	Position with respect to appropriations act limitation on obligations:							
1111	Limitation on direct loans to the public	0	0	0	0	0	0	0
1112	Unobligated direct loan limitation	0	0	0	0	0	0	0
1150	Total, direct loan obligations	0	0	0	0	0	0	0
	Cumulative balance of direct loans outstanding:							
1210	Outstanding, start of year	2,699	2,568	2,400	2,200	2,000	1,800	1,600
	Disbursements:							
1231	Direct loan disbursements	0	0	0	0	0	0	0
	Repayments:							
1251	Repayments and prepayments	(131)	(168)	(200)	(200)	(200)	(200)	(200)
1290	Outstanding, end of year	2,568	2,400	2,200	2,000	1,800	1,600	1,400

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION FUND

OBJECT CLASSIFICATION STATEMENT
(in thousands of dollars)

IDENTIFICATION CODE: 89-4045-0-3-271
DIRECT OBLIGATIONS

	1995 ACTUAL	1996 ESTIMATE	1997 ESTIMATE
11.1 Full-time permanent	170,000	175,000	180,000
11.3 Other than full-time permanent	3,000	1,000	1,000
11.5 Other personnel compensation	8,000	6,000	6,000
11.9 **Total personnel compensation**	**181,000**	**182,000**	**187,000**
12.1 Civilian personnel benefits	30,000	30,000	30,000
21.0 Travel and transportation of persons	8,000	11,000	12,000
22.0 Transportation of things	5,000	5,000	6,000
23.1 Rental payments to GSA	10,000	10,000	10,000
23.2 Rents, other	4,000	4,000	5,000
23.3 Communications, utilities and misc. charges	5,000	6,000	6,000
24.0 Printing and reproduction	1,000	1,000	1,000
25.1 Consulting services	2,000	2,000	2,000
25.2 Other services	2,251,000	2,393,000	2,442,000
25.3 Purchases from Government accounts	38,000	152,000	160,000
25.5 R & D contracts	8,000	10,000	11,000
26.0 Supplies and materials	35,000	80,000	44,000
31.0 Equipment	33,000	15,000	19,000
32.0 Lands and structures	25,000	22,000	11,000
41.0 Grants, subsidies, contributions	4,000	2,000	2,000
43.0 Interest and dividends	398,000	379,000	394,000
99.0 Subtotal obligations	3,038,000	3,304,000	3,342,000
99.0 **Reimbursable obligations**	**41,000**	**20,000**	**18,000**
99.9 **Total obligations**	**3,079,000**	**3,324,000**	**3,360,000**

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION
CURRENT SERVICES

PERSONNEL SUMMARY

Identification Code: 89-4045-0-3-271

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Direct:			
Total compensable work years:			
Full-time equivalent employment	3,278	3,237	3,237
Full-time equivalent of overtime	81	81	81
Full-time equivalent of holiday hours	4	4	4
Reimbursable:			
Total compensable work years:	35	35	35
Full-time equivalent employment	35	35	35

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FTE levels reflect DOE FY 1996/1997 staffing budget

BONNEVILLE POWER ADMINISTRATION
FTE Object Cost and Program Performance Analysis

I. Background

During the FY 1996 budget appropriations hearings the Congress indicated that it is difficult to determine where each Department of Energy employee is located and the costs associated with each. For FY 1997, the Department was instructed to include all salaries and related expenses in the program that manages the employee. Further, within each appropriation account, each organization should have one program direction line for all full-time equivalent employees (FTEs), both field and headquarters, and provide object class information for all expenses. No Federal employees are to be funded in program accounts.

II. Introduction:

These instructions apply to Bonneville as a distinct entity within the Department of Energy rather than as a program that spans the Department or an organization of the Department with installations or programs spread throughout DOE. BPA's program is a single account - the BPA Fund. This program is based upon BPA's business plan and strategic business objectives. The business-based budget is consistent with BPA's rate process and reflects regional review of program proposals by customers, rate payers and other stakeholders in BPA's program. In accord with BPA's statutory directive to present business-based budgets, the BPA program is presented as a fully funded self-financed power marketing program of interdependent capital and expense programmatic activities. Since each programmatic activity is an enterprise product or service, BPA's budget presents fully allocated program proposals that include all Federal employees, their costs, support and other program costs. Moreover, fully allocated budgets are critical to competitive pricing, business line and product margin management and accountability of BPA managers to customers, rate payers and the Congress and the Executive.

Because BPA is a governmental enterprise, its budgets present both enterprise and governmental information. Programmatic information presents the fully allocated costs of providing levels of product and service and achieving objectives against standards of performance. The program and performance schedule, budget obligational schedules, and the budget object classification schedule present BPA's enterprise budget on the basis of categories and costs of goods and services purchased by government spending and estimated rate and level of spending against authorizations and estimates.

All personnel-related costs of BPA's program for the period FY 1995-FY 1997 have been separated from the other budget object costs in the accompanying budget object crosscut. Comparison with last year's budget shows the efforts of BPA's cost-cutting competitiveness efforts. The data from this year's budget submission are summarized by the following tabulation. As supplemental information, BPA will provide under separate cover to the Committee an object cost and FTE breakdown for each of the capital and expense budget programs in the FY 1997 budget submission.

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BPA BUDGET OBJECT SUMMARY

	FY 1995			FY 1996			FY 1997		
	BPA	FTE $$ Only	All Other	BPA	FTE $$ Only	All Other	BPA	FTE $$ Only	All Other
Salary & Benefits	$ 211,000	$ 211,000	$-	$ 212,000	$ 212,000		$ 217,000	$ 217,000	-
Travel	$ 8,000	$ 8,000	$-	$ 11,000	$ 11,000	$-	$ 12,000	$ 12,000	$-
Support Services	$ 20,000	$ 20,000	$-	$ 20,000	$ 20,000	$ -	$ 22,000	$ 22,000	$-
Other Related Expenses	$ 2,840,000	$ -	$ 2,840,000	$ 3,034,000	$ -	$ 3,081,000	$ 3,086,000	$ -	$ 3,109,000
Total	$ 3,079,000	$ 239,000	$ 2,840,000	$ 324,000	$ 243,000	$ 3,081,000	$ 3,360,000	$ 251,000	$ 3,109,000
Full-time equivalents	3,313	3,313	-	3,272	3,272	-	3,272	3,272	-
Average $(000)/FTE	$ 929	$ 72	$ 857	$ 1,016	$ 74	$ 942	$1,020	$ 77	$ 950

III. Program Performance - Performance and Measurement

BPA program FTE and costs support the following BPA program performance. BPA provides electric power at its total system costs and annually earns revenues of more than $3 billion. BPA is the benchmark for power and transmission prices, giving ratepayers the best long-term assurance of low-cost power in the Pacific Northwest. BPA sells about 75 million megawatt-hour of electric energy annually, provides wheeling interchange and purchase-power delivery of an additional 75 million megawatts of electric energy for a total system load of more than 150 million megawatt-hours of energy. BPA builds and maintains a reliable transmission system. In fact, BPA's operate 80 percent of the region's high-voltage transmission system and serves about half of the electric needs of the Pacific Northwest' nearly 10 million-person population. BPA gives preference for Federal power to municipal systems, public utility districts and rural cooperatives. BPA provides for the participation and consultation of the public in regional plans and programs. BPA exchanges Federal power with high-cost utilities to share the regional hydro-system benefits with their residential and small farm customers. BPA protects and enhances fish wildlife by mitigating the effects resulting from Federal hydroelectric development in the Columbia River Basin. BPA provides leadership in achieving the region's cost-effective potential for energy conservation and renewable resources. BPA recovers the costs necessary to produce, transmit and conserve resources to meet electric power requirement. In addition to its other responsibilities, BPA recognizes that it has a trust responsibility that grows out the historical relationship between the Federal government and the Columbia River Treaty Tribes.

BPA's 3,272 FTE in FY 1997 will provide reliable, economic operation and maintenance of BPA's 23.8 thousand kilometer (14.8 circuit-miles) transmission system, 366 substations with a kilovolt -ampere capacity rating of 77 million kVA. This transmission system of lines, substations, control and communication facilities and associated utility and general plant are an investment of $5 billion , with gross annual revenues of more than $3 billion. BPA repays at market rates of interest the Government's capital investment of $13 billion in hydroelectric and thermal generating resources at 30 dams of the Corps of Engineers and the Bureau of Reclamation. BPA's system traversing 300,00 square miles and interconnecting electric utilities of eleven western States and British Columbia.

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Canada, and BPA's capital investments in energy conservation and fish and wildlife throughout the Pacific Northwest. BPA's conservation programs deliver about 50 megawatt-hours of energy saving a year and its fish and wildlife program provides for average annual economic investment of about $435 million in fish and wildlife facilities, habitat, foregone revenues and related economic costs in support of the region' fish and wildlife resources.

Program performance supports BPA's goal to:

- Provide electric power, transmission, and energy services in increasingly competitive markets.
- Support the achievement of BPA's responsibilities for fish and wildlife, energy conservation, renewable resources, and low -cost power for the region.
- Remain a low-cost producer and a creative and flexible marketer in the region, helping to ensure the economical and environmental health of the Pacific Northwest.
- Value individual diversity, entrepreneurial spirit, personal responsibility and the public service of BPA employees.

BPA's FY 1997 budget presentation reports performance measurement of accomplishment of seven strategic business objectives. These objectives, which are displayed in informative graphic displays of BPA performance in BPA's budget submission are:

Objective 1. Achieve high and continually improving customer satisfaction.

Objective 2. Increase the value of our business and share the expanded benefits.

Objective 3. Be the lowest-cost producer of power and transmission services.

Objective 4. Achieve and maintain financial integrity.

Objective 5. Keep the power system safe and reliable.

Objective 6. Invest in environmental results to sustain competitiveness.

Objective 7 Transform BPA into a high-performing, business-oriented organization.

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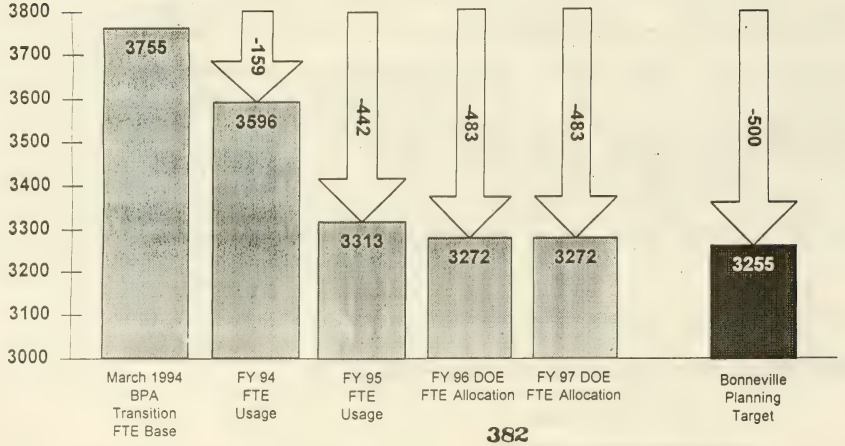
DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
BUDGET OBJECT CROSSCUT
(In dollars thousands)

	FY 1996 Cong. Budget	FY 1997 Congressional Submission			FY 1996 Cong. Budget	FY 1997 Congressional Submission			FY 1997 Congressional Submission		
	Total BPA Costs	Total BPA Costs	Personnel related costs Only	All Other Costs	Total BPA Costs	Total BPA Costs	Personnel related costs Only	All Other Costs	Total BPA Costs	Personnel related costs Only	All Other Costs
	1995 Estimate	1995 Actual			1996 Estimate	1996 Estimate			1997 Estimate		
11.1 Full-time permanent	162,645	170,000	170,000		161,925	175,000	175,000		180,000	180,000	
11.3 Other than full-time permanent	4,255	3,000	3,000		4,235	1,000	1,000		1,000	1,000	
11.5 Other personnel compensation	8,350	8,000	8,000		8,315	6,000	6,000		6,000	6,000	
11.9 Total personnel compensation	175,250	181,000	181,000		174,475	182,000	182,000		187,000	187,000	
12.1 Civilian personnel benefits	44,940	30,000	30,000		44,740	30,000	30,000		30,000	30,000	
21.0 Travel and transportation of persons	9,415	8,000	8,000		9,700	11,000	11,000		12,000	12,000	
22.0 Transportation of things	5,955	5,000		5,000	6,135	5,000		5,000	6,000		6,000
23.1 Rental payments to GSA	12400	10,000	10,000		13,000	10,000	10,000		10,000	10,000	
23.2 Rents, other		4,000	4,000			4,000	4,000		5,000	5,000	
23.3 Communications, utilities and misc.	8,840	5,000	5,000		9,105	5,000	5,000		6,000	6,000	
24.0 Printing and reproduction	950	1,000	1,000		980	1,000	1,000		1,000	1,000	
25.1 Consulting Services	17,580	2,000		2,000	18,110	2,000		2,000	2,000		2,000
25.2 Other services	2,529,075	2,251,000		2,251,000	2,549,785	2,394,000		2,394,000	2,442,000		2,442,000
25.3 Purchases from Government Accounts	21,490	38,000		38,000	22,135	152,000		152,000	160,000		160,000
25.5 R & D Contracts	12,580	8,000		8,000	12,960	10,000		10,000	11,000		11,000
26.0 Supplies and materials	57,090	35,000		35,000	58,800	80,000		80,000	44,000		44,000
31.0 Equipment	32,840	33,000		33,000	33,825	15,000		15,000	19,000		19,000
32.0 Lands and structures	30,090	25,000		25,000	30,990	22,000		22,000	11,000		11,000
41.0 Grants, subsidies, contributions	21,905	4,000		4,000	22,560	2,000		2,000	2,000		2,000
43.0 Interest and dividends	407,600	398,600		398,000	402,400	379,000		379,000	394,000		394,000
99.0 Reimbursable obligations	84,700	41,000		41,000	86,300	20,000		20,000	18,000		18,000
99.0 Total obligations	$ 3,472,700	$ 3,079,000	$ 239,000	$ 2,840,000	$ 3,496,000	$ 3,324,000	$ 243,000	$ 3,081,000	$ 3,360,000	$ 251,000	$ 3,109,000
Full-time Equivalents		3,313	3,313	0		3,272	3272	0	3,272	3,272	0
Average $/FTE		$ 929	$ 72	$ 857		$ 1,016	$ 74	$ 942	$ 1,027	$ 77	$ 950

The FY 1997 sections of this tabulation include all budget costs and estimates of the BPA Fund as presented in BPA's FY 1997 Congressional budget submission. The left column of each FY 1997 section matches BPA's Object Classification Statement. In accord with the Congressional guidance, all object costs associated with Federal FTE are separated and reported in the center section of each year's section of the FY 1997 sections. No Federal FTE costs are included in the right column of each FY 1997 section. FTE costs include all BPA salaries, benefits, personnel travel, rents, utilities and printing for headquarters and field. There are no BPA FTE costs elsewhere. As supplemental information, BPA will provide budget object detail and analysis of each capital and expense program of its budget to the Committee under separate cover.

PROGRESS TOWARD 500
BONNEVILLE FTE REDUCTION GOAL
(Revised February 1, 1996)



BPA's March 1994 baseline for FY 1994 was the number of filled positions (permanent and temporary, full and part-time, including student programs charged against FTE allocations) whose incumbents were actually on board and charging against BPA FTE. BPA identified this as baselines for both employment and FTE.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMITTAL
BONNEVILLE POWER ADMINISTRATION

REVENUE AND RECEIPT REPORT
(in thousands of dollars)

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Gross Revenues 1/							
Federal	89,000	90,000	90,000	90,000	90,000	90,000	90,000
Non-Federal Sources	3,249,000	3,250,000	2,931,000	2,987,000	2,986,000	3,052,000	3,115,000
Proprietary Receipts							
Reclamation Fund, all other, sale of electric energy (Reclamation Fund) 2/	58,725	69,000	106,000	77,000	95,000	101,000	134,000
Repayments on misc. recoverable costs, not otherwise classified (COE & LSRCP) 3/	97,686	85,000	89,000	96,000	99,000	103,000	109,000
Less, 4h10c credit	-56,268	-62,740	-62,000	-60,000	-61,000	-62,000	-58,000
	41,418	22,260	27,000	36,000	38,000	41,000	51,000
Power Marketed (thousands of gigawatt/hours sold) 4/	79	82	87	88	89	89	89

1/ FY 1995 revenues reflect audited actuals. FY 1996 revenues reflect estimates developed for BPA's 4th Quarter Review. FY 1997 revenues reflect the Supplemental Rate Proposal for the 1996 Rate Case.
FY 1997-2001 revenues reflect expensed obligations in this budget, less amortization of Bureau appropriations and irrigation assistance, plus depreciation estimates and net revenue amounts developed for the 1996 Supplemental Rate Proposal. Does not include Reimbursements.

2/ Includes amortization of appropriations and irrigation assistance, as well as O&M and interest costs for the Bureau of Reclamation. Represents transfers to Account #895000.26

3/ Includes O&M costs only for the Corp of Engineers and the Lower Snake River Compensation Plan activities. Represents transfers to Account #892889.

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CREDIT MANAGEMENT LEVEL OF EFFORT

	TOTAL FTE EMPLOYMENT			TOTAL OBLIGATIONS ($000)		
	1995 Actual	1996 Estimate	1997 Estimate	1995 Actual	1996 Estimate	1997 Estimate
Credit extension	NA	NA	NA	NA	NA	NA
Account servicing	2	2	2	70	70	70
Delinquent debt collect	1	1	1	50	50	50
Other	0	0	0	0	0	0
TOTAL	3	3	3	120	120	120

DELINQUENT DEBT COLLECTION
BY PRIVATE COLLECTION AGENCIES ($000)

	1995 Actual	1996 Estimate	1997 Estimate
Amount of delinquent/defaulted receivables referred to private collection agencies	5	10	10
Amount collected	0	0	0
Obligations for contractor collections	0	0	0
Net Amount retained by Government	0	0	0

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Southeastern Power Administration

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Power Marketing Administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	30,533	29,902	27,445	-2,457	-8.2%
Southwestern power administration	30,548	30,748	27,804	-2,944	-9.6%
Western Area Power Administration					
Western area power administration	323,896	276,676	248,691	-27,985	-10.1%
Transfer of current authority from DOI	1,800	4,556	3,774	-782	-17.2%
Total, Western Area Power Administration	325,696	281,232	252,465	-28,767	-10.2%
Falcon and Amistad Operating and Maintenance Fund	—	1,000	970	-30	-3.0%
Colorado River Basin Power Marketing Fund					
Spending authority from offsetting collections	98,066	129,414	120,431	-8,983	-6.9%
Offsetting collections	-98,066	-129,414	-130,431	-1,017	-0.8%
Total, Colorado River Basin Fund	—	—	-10,000	-10,000	—
Subtotal, Power Marketing Administrations:	393,269	347,142	302,684	-44,458	-12.8%
Use of prior year balances and other adjustments	-158,694	-29,710	-38,249	-8,539	-28.7%
Total, Power Marketing Administrations	**234,575**	**317,432**	**264,435**	**-52,997**	**-16.7%**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OPERATION AND MAINTENANCE, SOUTHEASTERN POWER ADMINISTRATION

PROPOSED APPROPRIATION LANGUAGE

For necessary expenses of operation and maintenance of power transmission facilities and of marketing electric power and energy pursuant to the provisions of section 5 of the Flood Control Act of 1944 (16 U.S.C. 825s), as applied to the southeastern power area, [$19,843,000] $20,900,000, to remain available until expended.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
SOUTHEASTERN POWER ADMINISTRATION
(Tabular dollars in thousands, Narrative in whole dollars)

SOUTHEASTERN POWER ADMINISTRATION

EXECUTIVE BUDGET SUMMARY

Mission

The mission of Southeastern is to market the electric power and energy generated by the Southeastern Federal reservoir projects and to encourage widespread use of the power at the lowest possible cost to consumers in the most business-like manner.

The Southeastern Power Administration markets power produced at 23 Corps of Engineers-constructed projects, to customers in eleven southeastern states giving preference in the sale of power to public bodies and cooperatives in accordance with the Flood Control Act of 1944.

Southeastern does not own or operate any transmission facilities. In the absence of transmission facilities of its own, Southeastern carries out its marketing program by utilizing the existing transmission systems of the power utilities in the area. This is accomplished through "wheeling" arrangements between Southeastern and each of the area utilities with transmission lines connected to the projects, under which the utility agrees to deliver specified amounts of Federal power to customers of the Government, and Southeastern agrees to compensate the utility for the wheeling services performed.

The GOALS of the Southeastern Power Administration are to:

1. Encourage widespread use of available Federal power; make the power available at the lowest possible rates to consumers consistent with sound business principles while repaying the Federal investment in a timely manner; and operate projects as an integrated system to provide maximum power contribution in meeting area power requirements.

2. Give preference in the sale of power to public bodies and cooperatives.

3. Utilize existing area transmission facilities to accomplish transmission of power to customers.

4. Encourage development of additional hydropower projects that are economically and environmentally feasible.

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The OBJECTIVES related to these goals are:

1. Actively participate in electrical industry policy formulation. Demonstrate a willingness to change policy, contracts, and operating procedures to be more responsive to our customers.

2. Accomplish timely repayment by propitious billing and collection for power delivered to customers. Hold costs to a level where future rate increases caused by escalation will be no more than 50% of consumer price index in cooperation with the preference customers and Corps of Engineers. Work with customers and Corps of Engineers on cost monitoring and work toward cost containment. Develop creative repayment strategies to integrate new funding methods into present system.

3. Formulate power rates to recover all costs of producing and transmitting power, including amortization of capital investment allocated to power, over a 50-year period and replacements over the service lives which are less than 50 years.

4. Continue to administer approximately 300 contracts which benefit more than 500 customers in a fair and effective manner that carries out the intent of contract provisions. This objective includes power delivery, contract service, billing and collection functions and daily coordination of reservoir operations to maximize power output and meet firm power commitments.

5. Southeastern's Integrated Resource Plan seeks to help customers find new ways to accomplish the goals of the Integrated Resource Plan, with emphasis on strategies that take advantage of market forces and lead to less intervention in markets.

6. Work with the Corps and preference customers to ensure funding for rehabilitation and upgrade of existing and new projects, and operation and maintenance expense.

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Strategy

Southeastern continues to take the lead in fostering communications with our customers through two previously established partnerships - the Southeastern Federal Power Alliance and Team Cumberland.

In July 1991, the Southeastern Federal Power Alliance was formed between Southeastern, the South Atlantic Division of the U. S. Army Corps of Engineers, and preference customers in the Georgia-Alabama-South Carolina System. Officials representing these three groups met to create a vision and develop a strategy that would foster open communication and trust. The Alliance chose the theme "Partners Advancing Clean Reliable Hydropower" to represent their efforts.

Team Cumberland was formed in February 1992. This new partnership consists of representatives of Southeastern, the Ohio River Division of the Corps of Engineers, and customers in the Cumberland System. "Partners Advancing Responsible Hydropower" was the theme chosen to represent Team Cumberland's vision.

The Southeastern Federal Power Alliance focuses its efforts on the possibility of developing a joint Southeastern-Corps of Engineers operations center with input from the customers. Both partnerships met several times during 1994 to exchange information and promote their visions.

Major Changes

Southeastern has continually revised its Strategic Plan. The plan outlines the goals and objectives Southeastern anticipates implementing during the next five years. These goals and objectives are needed to ensure the agency's vision.

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Southeastern expanded its capability to schedule the hourly generation of the hydroelectric projects in Southeastern's marketing area.

Southeastern supported and began fulfilling requirements for streamlining set forth in the Vice President's National Performance Review. Following the Department's goals and objectives for this process and implementing our total quality skills, a new organizational structure was established in 1994.

Southeastern's total quality process began in 1991 with associates receiving extensive training to become familiar with team building and process improvement techniques. Southeastern's efforts in Total Quality Management has lead us in improved customer service.

Southeastern expanded its Integrated Resource Plan and energy efficiency activities in the last few years. Numerous workshops and conferences were held involving customer groups and their constituent organizations. Education and training opportunities have been made available to eleven customer groups, more than any other PMA. In October 1993, Southeastern, along with Oak Ridge National Laboratory, the Department of Energy and Clayton Homes jointly funded a research project that has identified cost effective manufactured housing design modifications that result in significant improvement in energy efficiency.

ALTERNATIVE FINANCING. The Acting Administrator's testimony before the Energy & Water Development Appropriations subcommittee hearings in March 1995, included alternative funding proposals.

Southeastern has been looking into alternative financing methods which would have the preference customers pay the utilities directly for many services. Southeastern, in cooperation with its customers, is looking at the following alternatives:

Net Billing, Bill Crediting & Reimbursable Work:

1. Using alternative financing methods like bill crediting and reimbursable work, preference customers would pay utilities directly for wheeling and ancillary services. Also, to provide for power purchases for pumping operations, Southeastern's preference customers will provide advanced funding for the purchase of pumping power. The advances will be replenished from funds supplied by such customers after pumping power is delivered.

2. Also under consideration is the establishment of communications links from six master power plants to Southeastern and from Southeastern to South Atlantic Division, US Army Corps of Engineers, Atlanta, GA.

3. Finally, funding could be provided for the Corps of Engineers to improve and rehabilitate the projects. These items include an updated study of Wolf Creek Upgrade and replacing switchyard disconnects and potential transformers at the Walter F. George Project.

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SOUTHEASTERN POWER ADMINISTRATION

PROGRAM MISSION

The Southeastern Power Administration markets power produced at 23 Corps of Engineers-constructed projects, to customers in eleven southeastern states giving preference in the sale of power to public bodies and cooperatives in accordance with the Flood Control Act of 1944.

Southeastern markets hydroelectric power in the states of West Virginia, Virginia, North and South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Illinois and Kentucky.

Southeastern does not own or operate any transmission facilities. In the absence of transmission facilities of its own, Southeastern carries out its marketing program by utilizing the existing transmission systems of the power utilities in the area. This is accomplished through "wheeling" arrangements between Southeastern and each of the area utilities with transmission lines connected to the projects, under which the utility agrees to deliver specified amounts of Federal power to customers of the Government, and Southeastern agrees to compensate the utility for the wheeling services performed.

The GOALS of the Southeastern Power Administration are to:

1. Encourage widespread use of available Federal power; make the power available at the lowest possible rates to consumers consistent with sound business principles while repaying the Federal investment in a timely manner; and operate projects as an integrated system to provide maximum power contribution in meeting area power requirements.

2. Give preference in the sale of power to public bodies and cooperatives.

3. Utilize existing area transmission facilities to accomplish transmission of power to customers.

4. Encourage development of additional hydropower projects that are economically and environmentally feasible.

The OBJECTIVES related to these goals are:

1. Actively participate in electrical industry policy formulation. Demonstrate a willingness to change policy, contracts, and operating procedures to be more responsive to our customers.

2. Accomplish timely repayment by propitious billing and collection for power delivered to customers. Hold costs to a level where future rate increases caused by escalation will be no more than 50% of consumer price index in cooperation with the preference customers and Corps of Engineers. Work with customers and Corps of Engineers on cost monitoring and work toward cost containment. Develop creative repayment strategies to integrate new funding methods into present system.

3. Formulate power rates to recover all costs of producing and transmitting power, including amortization of capital investment allocated to power, over a 50-year period and replacements over the service lives which are less than 50 years.

4. Continue to administer approximately 300 contracts which benefit more than 500 customers in a fair and effective manner that carries out the intent of contract provisions. This objective includes power delivery, contract service, billing and collection functions and daily coordination of reservoir operations to maximize power output and meet firm power commitments.

5. Southeastern's Integrated Resource Plan seeks to help customers find new ways to accomplish the goals of the Integrated Resource Plan, with emphasis on strategies that take advantage of market forces and lead to less intervention in markets.

6. Work with the Corps and preference customers to ensure funding for rehabilitation and upgrade of existing and new projects, and operation and maintenance expense.

PERFORMANCE MEASURES:

Performance measures related to Southeastern Power Administration are based on outputs and outcomes. These outputs are aimed at achieving specific outcomes including, establish rates sufficient to make full and timely payment to the U. S. Treasury, maintain health and safety of all employees, develop and achieve the operation of a reliable, low-cost, environmentally sound generation system which facilitates competitive and efficient wholesale power supplies. This data is compared with past data to insure Southeastern outputs and outcomes are appropriate. Outputs include:

1. Percent variance of actual from planned principal payments to Federal investment is estimated to be zero (0).

2. Percent of full-time capacity commitments is estimated to be 92 percent.

3. Increase in the transmission costs is expected to be less than the increase in the Consumer Price Index.

4. Increase in average power costs is expected to be less that the increase in the Consumer Price Index.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Southeastern continues to take the lead in fostering communications with our customers through two previously established partnerships - the Southeastern Federal Power Alliance and Team Cumberland. The Southeastern Federal Power Alliance focuses its efforts on the possibility of developing a joint Southeastern-Corps of Engineers operations center with input from the customers. Both partnerships met several times during 1994 to exchange information and promote their visions.

- The Stonewall Jackson Project, located in West Virginia, was energized in 1994 and became Southeastern's 23rd project. The 300 kilowatt generator was added to the existing dam.

- Southeastern expanded its capability to schedule the hourly generation of the hydroelectric projects in Southeastern's marketing area.

- Southeastern supported and began fulfilling requirements for streamlining set forth in the Vice President's National Performance Review. Following the Department's goals and objectives for this process and implementing our total quality skills, a new organizational structure was established in 1994.

- Southeastern's total quality process began in 1991 with associates receiving extensive training to become familiar with team building and process improvement techniques. Southeastern's efforts in Total Quality Management has lead us in improved customer service.

- Southeastern expanded its Integrated Resource Plan and energy efficiency activities in the last few years. Numerous workshops and conferences were held involving customer groups and their constituent organizations. Education and training opportunities have been made available to eleven customer groups, more than any other PMA. In October 1993, Southeastern, along with Oak Ridge National Laboratory, the Department of Energy and Clayton Homes jointly funded a research project that has identified cost effective manufactured housing design modifications that result in significant improvement in energy efficiency.

- Southeastern has continually revised its Strategic Plan. The plan outlines the goals and objectives Southeastern anticipates implementing during the next five years. These goals and objectives are needed to ensure the agency's vision.

- Although negotiations with The Southern Company are still ongoing, it now appears that any increase in expenses will be modest and can be covered by alternative financing arrangements.

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Southeastern has been looking into alternative financing methods which would have the preference customers pay the utilities directly for many services. Southeastern, in cooperation with its customers, is looking at the following alternatives:

Net Billing, Bill Crediting & Reimbursable Work:

1. Using alternative financing methods like bill crediting and reimbursable work, preference customers would pay utilities directly for wheeling and ancillary services. Also, to provide for power purchases for pumping operations, Southeastern's preference customers will provide advanced funding for the purchase of pumping power. The advances will be replenished from funds supplied by such customers after pumping power is delivered.

2. Also under consideration is the establishment of communications links from six master power plants to Southeastern and from Southeastern to South Atlantic Division, US Army Corps of Engineers, Atlanta, GA.

3. Finally, funding could be provided for the Corps of Engineers to improve and rehabilitate the projects. These items include an updated study of Wolf Creek Upgrade and replacing switchyard disconnects and potential transformers at the Walter F. George Project.

SOUTHEASTERN POWER ADMINISTRATION

PROGRAM FUNDING PROFILE
(In Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Operation and Maintenance					
Operating Expenses	$0	$3,472	($3,472)	$0	$0
Purchase Power and Wheeling					
Operating Expenses	27,249	26,430	0	26,430	23,456
Program Direction	3,284	0	3,472	3,472	3,989
Subtotal, Southeastern Power Administration	$30,533	$29,902	$0	$29,902	$27,445
a/ Adjustment	(8,110)	(10,059)	0	(10,059)	(6,545)
TOTAL:	$22,423	$19,843	$0	$19,843	$20,900

a/ Use of prior years balances.

Public Law Authorizations:

Pub. Law 78-534, Flood Control Act of 1944
Pub. Law 95-91, DOE Organization Act of 1977, Section 302
Pub. Law 102-485, Energy Policy Act of 1992

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SOUTHEASTERN POWER ADMINISTRATION

PROGRAM FUNDING BY SITE
(In Thousands)

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
All Other	$30,533	$29,902	$0	$29,902	$27,445
Subtotal	$30,533	$29,902	$0	$29,902	$27,445
Adjustment	($8,110) a/	($10,059) a/	$0	($10,059)	($6,545)
TOTAL:	$22,423	$19,843	$0	$19,843	$20,900

a/ Use of prior years balances.

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Site Funding and Federal Staffing Profiles

Program Activity	FY 1995	FY 1996	FY 1997
Southeastern Power Administration	$ 30,533	$ 29,902	$ 27,445
Total Southeastern Power Adm.	$ 30,533	$ 29,902	$ 27,445

PROGRAM DIRECTION

I. Mission Supporting Goals and Objectives

This activity provides for: (1) scheduling the generation of power and supervision of power deliveries, (2) negotiation and administration of contracts for the sale of power and energy and establishment of rates to assure repayment of power costs, (3) general administration and support of Southeastern's power marketing program, and (4) Integrated Resources Planning program. We coordinate and cooperate with our partners to operate projects in a manner that enhances the value and reliability of hydropower. Priority is given to integrating environmental concerns and determinations into program actions. Emerging energy efficiency technologies are integrated with marketing strategies and programs.

Southeastern's FTE activities and percentages are provided as follows:

10% The Office of the Administrator is responsible for marketing hydroelectric power and energy and includes the office of Legal Affairs and the Liaison Specialist in the Power Marketing Liaison Office in Washington, DC.

30% The Finance and Marketing Division negotiates, prepares and administers contracts for the sale, purchase/interchange, and wheeling of power, formulates rates to meet repayment requirements, is responsible for budget, accounting and financial management activities, customer service, and the Integrated Resource Planning program.

28% The Human Resource and Administration Division plans, develops, coordinates and administers administrative and management activities of Southeastern. It includes activities to support mission accomplishment, ADP services, Public Information program, procurement, personnel, and supply.

32% The Power Resources Division studies power production to determine the amounts of available power and energy and studies methods of coordinating operation of present and proposed generating plants to obtain maximum utilization of water and power resources. This division schedules storage and release of water controlled by Southeastern and administers contractual operation requirements and performs billing operations for power sold by Southeastern.

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As of September 30, 1995, the projects represent a cumulative Federal investment, including replacements, of $1,487,116,241. Through FY 1995, $501,126,856 has been repaid in addition to $859,296,175 in interest.

Program direction has been grouped into four categories:

Salaries and Benefits provides for funding a staffing level of 40 full-time equivalents. This includes regular salary, overtime pay, annual and sick leave, and personnel benefit additives.

Travel provides for funding the transportation of Government employees, their per diem allowances and other incidental expenses related to travel for official business. It consists of travel away from official stations and local travel and transportation of persons. Various travel includes site visits, information meetings, training, speech/presentations, conferences, relocation moves, etc.

Support Services provides for funding of contract services in support of the administrative functions of the office, including maintenance of computer equipment.

Other Related Expenses costs of space rental, communications, utilities and miscellaneous charges, printing, training, tuition, contract services, financial audit of Southeastern Federal Power Program (SEFPP), operation and maintenance of equipment, supplies and materials, equipment.

II. Funding Table:

	FY 95 Comparable Appropriation	FY 96 Original Appropriation	Real & Comp Adjustments	FY 96 Comparable Appropriation	FY 97 Budget Request
Salary and Benefits	$ 2,325	$ 2,458	$	$ 2,458	$ 2,562
Travel	172	246		246	195
Support Services	71	103		103	103
Other Related Expenses	716	665		665	1129 *
Total	$ 3,284	$ 3,472	$	$ 3,472	$ 3,989
Full Time Equivalents	42	41		41	40
Average	$ 78	$ 85	$	$ 85	$ 100
Adjustment					
Budget Authority	$ 3,284	$ 3,472	$	$ 3,472	$ 3,989

* This increase is explained in Part IV of this Section.

III. Performance Summary:

FY 1995 Accomplishments:

- Continued negotiations to implement the Cumberland System Marketing Policy.
- Continued the purchase and scheduling of pumping energy, coordination between the providers of the pumping energy and the project and accounting of all transactions relative to pumping operations of the Carters Project.
- Issued the power marketing policy for the Georgia-Alabama-South Carolina System.
- Began and continued testing of all four pump back units at the Richard B. Russell Project.

- Continued to maintain power billing, collection, and payment functions for approximately 300 contracts which benefits more than 500 preference customers.
- Began control area services for the three Savannah River Projects-Hartwell, Russell and Thurmond.
- Continued negotiations pertaining to the disposition of power from the pump units at the Richard B. Russell Project.
- Issued a formal rate presentation for the Jim Woodruff Project.
- Performed continuing review of actual project operations and prepare repayment analyses of each system to determine rates.
- Southeastern's Integrated Resource Plan program cooperatively funded an energy efficiency program for manufactured housing and provided energy efficiency training for many of its preference customers.
- Marketed 6,829 GWH of clean renewable hydroelectric energy providing total proprietary receipts of $146,484,000.
- Negotiated contract extensions to existing contracts in the Duke Power Company, South Carolina Public Service Authority, South Carolina Electric & Gas Company, and The Southern Company service areas (184 contracts).

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FY 1996 Accomplishments (to date and planned):

- Continue negotiations for contracts in the Georgia-Alabama-South Carolina System.
- Continue the purchase and scheduling of pumping energy, coordination between the providers of the pumping energy and the project and accounting of all transactions relative to pumping operations of the Carters Project.
- Continue to maintain power billing, collection, and payment functions for approximately 300 contracts which benefits more than 500 preference customers.
- Coordinate power operations of 23 operating projects with all parties making determinations of capacity and energy availability weekly.
- Make a formal rate presentation for the Kerr-Philpott Project.
- Perform continuing review of actual project operations and prepare repayment analyses of each system to determine rates.

- Continue to provide control area services for the three Savannah River Projects-Hartwell, Russell and Thurmond.
- Continue testing of all four pump back units at the Richard B. Russell Project.
- Continued negotiations pertaining to the disposition of power from the pump units at the Richard B. Russell Project.
- The Integrated Resource Plan program will continue to provide training opportunities for our customers as well as on-site assistance, circuit riders, peer consulting and trade association consultations.
- Formulate a program proposal for using Bill Crediting and Reimbursable Funds in the payment of wheeling and other expenses.
- Marketed 7,801 GWH of clean renewable hydroelectric energy providing total proprietary receipts of $156,326,000.
- Complete negotiations and execute power contracts in The Southern Company area (128 contracts).
- Complete negotiations and execute power contracts in Cumberland System area (11 contracts).

FY 1997 Planned Accomplishments:

- Continue to maintain power billing, collection, and payment functions for approximately 300 contracts which benefits more than 500 preference customers.
- Continue the purchase and scheduling of pumping energy, coordination between the providers of the pumping energy and the project and accounting of all transactions relative to pumping operations of the Carters Project.
- Coordinate power operations of 23 operating projects with all parties making determinations of capacity and energy availability weekly.
- Perform continuing review of actual project operations and prepare repayment analyses of each system to determine rates.
- Continue to provide control area services for the three Savannah River Projects-Hartwell, Russell and Thurmond.
- The Integrated Resource Plan program will continue to offer training and related energy efficiency services to our customers.
- Identify additional opportunities for the use of Bill Crediting and Reimbursable Funds to reduce the need for appropriated funds to meet administration expenses.

- Complete negotiations pertaining to the disposition of power from the pump units at the Richard B. Russell Project.
- Marketed 7,801 GWH of clean renewable hydroelectric energy providing total proprietary receipts of $165,494,000.
- Complete negotiations and execute power contracts in the South Carolina Public Service Authority area (5 contracts).
- Complete negotiations and execute power contracts in the South Carolina Electric & Gas Company area (6 contracts).
- Complete negotiations and execute power contracts in the Duke Power Company area (46 contracts).
- Complete negotiations and execute power contracts in the Kentucky Utilities Company area (13 contracts).

IV. Explanation of Funding Changes FY 96 to FY 97:

Through FY 96, funding was under Operation and Maintenance (O&M) activity. Beginning in FY 97, all O&M funding is now being shown under Program Direction.

The increase of $105,000 is needed in Salaries and Benefits as a result of the cost of living raise and the possibility of hiring of employees to reach the authorized FTE level.

An amount of $180,000 is needed to fund Southeastern's Integrated Resource Plan activities.

The remainder of the increase, $232,000, is for the purchase of ADP equipment and software, increase in maintenance agreements, and general inflation increases.

V. Explanation of Average FTE Costs:

The average FTE costs for Southeastern are $78,000 for FY 95, $85,000 for FY 96, and $100,000 for FY 97.

These costs which are in all areas under Program Direction include salaries and benefits, official travel costs, training expenses, communications, rent of space, maintenance agreements, supplies and equipment, and contract services to carry out Southeastern's generation scheduling functions. All costs described in IV above represent an average increase of 15% for the 40 FTEs authorized.

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DEPARTMENT OF ENERGY
FY 1997 BUDGET REQUEST
(obligations in thousands)

PROGRAM OBJECT CLASS SUMMARY

SOUTHEASTERN POWER ADMINISTRATION

Personnel Compensation:	FY 1995	FY 1996	FY 1997
11.1 Full-time permanent	$1,691	$1,955	$2,037
11.3 Other than full-time permanent	44	29	30
11.5 Other Personnel compensation	137	31	33
11.9 Total personnel Compensation	$1,872	$2,015	$2,100
12.1 Civilian personnel benefits	352	443	462
21.0 Travel & transporation of persons	134	170	175
22.0 Transportation of things	0	76	20
23.1 Rental Payments to GSA	85	93	95
23.2 Rental Payments to others	12	12	16
23.3 Communications, utilities & miscellaneous charges	64	179	174
24.0 Printing & Reproduction	6	10	10
25.2 Other services	292	310	545
25.7 Operation and maintenance of equipment	44	44	90
26.0 Supplies & materials	70	74	170
31.0 Equipment	190	46	132
99.0 Subtotal, Direct Obligations	$3,121	$3,472	$3,989
99.9 TOTAL OBLIGATIONS	$3,121	$3,472	$3,989
Unobligated balance available, start of year	(68)		
Unobligated balance available, end of year	231		
99.9 BUDGET AUTHORITY	$3,284	$3,472	$3,989

SOUTHEASTERN POWER ADMINISTRATION

PURCHASE POWER AND WHEELING
(Tabular dollars in thousands, Narrative in whole dollars)

I. Mission Supporting Goals and Objectives:

This activity provides for the payment of amounts charged the Government under contractual arrangements for: (1) delivery of power over non-Federal systems to load centers of preference customers for the account of the Government, (2) purchase of energy to firm up Federally generated power during adverse water periods, and (3) support capacity required to meet commitments for the Jim Woodruff project under adverse water conditions. Priority is given to meeting contractual commitments and being the lead in arranging transmission of power and assisting others in planning and constructing facilities where necessary.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Purchase Power and Wheeling	$ 27,249	$ 26,430	$ 23,456	$ (2,974)	-11.0
Total, Purchase Power and Wheeling	$ 27,249	$ 26,430	$ 23,456	$ (2,974)	-11.0

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III. Performance Summary:

FY 1995 Accomplishments:

- Provided support to the Jim Woodruff project under adverse water conditions through purchases of energy necessary to provide support capacity .
- Continued purchases of energy to pump water into the Carters Project for later release.
- Provided for environmental testing for the Richard B. Russell Project to test the pump back units.
- Provided for payment of transmission service charges for delivery of power over non-Federal systems.

FY 1996 Accomplishments (to date and planned):

- Provide support to the Jim Woodruff project under adverse conditions through purchases of energy necessary to provide support capacity .
- Continue purchases of energy to pump water into the Carters Project for later release.
- Provide for environmental testing for the Richard B. Russell Project to test the pump back units.
- Provide for payment of transmission service charges for delivery of power for 21 of Southeastern's projects over non-Federal systems.

FY 1997 Planned Accomplishments:

- Provide support to the Jim Woodruff project under adverse water conditions through purchases of energy necessary to provide support capacity .
- Continue purchases of energy to pump water into the Carters Project for later release.
- If the present testing schedule holds and the court accepts the Corps proposals for protecting the fish during pumping operations at the Russell Project, the commercial availability of the pump-back units is planned for May 1997.
- Provide for payment of transmission service charges for delivery of power for 21 of Southeastern's projects over non-Federal systems.

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Explanation of Funding Changes FY 1996 to FY 1997:

Based on the assumptions listed below of utilizing net billing, reimbursable work, and bill crediting procedures, the Purchase Power and Wheeling activity is decreased by $2,974,000.

Breakdown of total needs:

Wheeling	$31,046	
Purchase Power	16,938	
		47,984
Less Net Billing	(11,467)	
Less Bill Crediting & Reimbursable Work 1/	(13,061)	
		(24,528)
Total:		$23,456

1/ Bill Crediting & Reimbursable Work:

Using alternative financing methods like bill crediting and reimbursable work, preference customers would pay utilities directly for wheeling and ancillary services. Also, to provide for power purchases for pumping operations, Southeastern's preference customers will provide advanced funding for the purchase of pumping power. The advances will be replenished from funds supplied by such customers after pumping power is delivered.

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DEPARTMENT OF ENERGY
FY 1997 BUDGET REQUEST
(obligations in thousands)

PURCHASE POWER AND WHEELING OBJECT CLASS SUMMARY

SOUTHEASTERN POWER ADMINISTRATION

Personnel Compensation:	FY 1995	FY 1996	FY 1997
11.1 Full-time permanent			
11.3 Other than full-time permanent			
11.5 Other Personnel compensation			
11.9 Total personnel Compensation	$0	$0	$0
12.1 Civilian personnel benefits			
21.0 Travel & transporation of persons			
22.0 Transportation of things			
23.1 Rental Payments to GSA			
23.2 Rental Payments to others			
23.3 Communications, utilities & miscellaneous charges			
24.0 Printing & Reproduction			
25.2 Other services	20,495	26,430	23,456
25.7 Operation and maintenance of equipment			
26.0 Supplies & materials			
31.0 Equipment			
99.0 Subtotal, Direct Obligations	$20,495	$26,430	$23,456
99.9 TOTAL OBLIGATIONS	$20,495	$26,430	$23,456
Use of carry-over funds		(10,059)	(6,545)
Unobligated balance available, start of year	(18,094)		
Unobligated balance available, end of year	16,738		
99.9 BUDGET AUTHORITY	$19,139	$16,371	$16,911

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
POWER MARKETING ADMINISTRATION

REVENUES AND RECEIPTS
(Dollars in Thousands)

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Southeastern Power Administration						
Gross Revenues						
Sale & transmission of electric energy	$155,299	$166,966	$176,961	$212,889	$215,868	$221,168
Accounts Receivable						
Beginning balance	12,489					
Ending balance	-10,871					
Net billing amount credited as an offsetting receipt	-10,433	-10,640	-11,467	-12,079	-12,213	-12,787
Total Proprietary Receipts	$146,484	$156,326	$165,494	$200,810	$203,655	$208,381
Percent of sales to preference customers 1/	99%	99%	99%	99%	99%	99%
Energy sales and Power Marketed (in billions of kilowatt hours)	6.8	7.8	7.8	7.8	7.8	7.8

1/ Includes TVA

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
SYSTEM STATISTICS

SOUTHEASTERN POWER ADMINISTRATION

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Generating Capacity:			
Installed Capacity (KW)	3,092,675	3,092,675	3,092,675
Peak capacity (KW)	3,390,000 1/	3,390,000	3,390,000
Generating Stations:			
Generating Projects (No.)	23	23	23
Available energy:			
Energy from Streamflow	6,835,525	7,700,000	7,700,000
Energy from Pumping	198,341	250,000	275,000
Energy Purchased (MWH)	16,775	75,000	75,000
Energy available for Marketing (MWH)	7,050,641 2/	8,025,000 3/	8,050,000 3/

1/ Contracted capacity including reserves and losses.

2/ Gross amount; transmission losses of 222,070 mwh must be deducted from this quantity to get net energy (6,828,571 mwh) marketed to customers.

3/ Gross amount; transmission losses of approximately 250,000 mwh must be deducted from this quantity to get net energy marketed to customers.

POWER MARKETED, WHEELED, OR EXCHANGED BY PROJECT

Southeastern Power Administration

Project Power Marketed	State	Plants	Installed Capacity (KW)	FY 1995 Actual Power (GWH)	FY 1996 Estimated Power (GWH)	FY 1997 Estimated Power (GWH)
John H. Kerr	Va.-N.C.	1	204,000			
Philpott	Va.	1	14,000	381*	475*	475*
Allatoona	Ga.	1	74,000			
Buford	Ga.	1	86,000			
Carters	Ga.	1	500,000			
J. Strom Thurmond	Ga.-S.C.	1	280,000			
Walter F. George	Ga.-Ala.	1	130,000	3,576*	3,810*	3,835*
Hartwell	Ga.-S.C.	1	344,000			
R. F. Henry	Ala.	1	68,000			
Millers Ferry	Ala.	1	75,000			
West Point	Ga.-Ala.	1	73,375			
Richard B. Russell	Ga.-S.C.	1	300,000 a/			
Jim Woodruff	Fla.-Ga.	1	30,000	219	230	230
Barkley	Ky.	1	130,000			
Center Hill	Tenn.	1	135,000			
Cheatham	Tenn.	1	36,000			
Cordell Hull	Tenn.	1	100,000	2,652*	3,260*	3,260*
Dale Hollow	Tenn.	1	54,000			
Old Hickory	Tenn.	1	100,000			
J. Percy Priest	Tenn.	1	28,000			
Wolf Creek	Ky.	1	270,000			
Laurel	Ky.	1	61,000			
Stonewall Jackson	W. Va.	1	300	1	1	1
Total, power marketed		23	3,092,675	6,829	7,776	7,801

*Projects are integrated hydraulically, electrically, and financially for marketing purposes.

a/ Four pump-generators are scheduled to go into commercial operation in FY 1997, to give a total installed capacity of 600,000 KW.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

PENDING LITIGATION

SOUTHEASTERN POWER ADMINISTRATION

In Central Electric Power Cooperative, Inc., et al. vs. Southeastern Power Administration, et al., No. 3-91-2449-0 (D.C.S.C.; filed August 15, 1991), six customers in South Carolina filed suit against Southeastern in U.S. District Court requesting the court to declare illegal Southeastern's energy surcharge contained in its 1990 approved rates for the Georgia-Alabama-South Carolina System, as applied to these customers. These six customers (five cooperatives and South Carolina Public Service Authority) had declined to participate in a voluntary short-term rate increase during 1989, while 168 other customers in the system participated in the voluntary rate increase earlier than allowed by their contracts. The short-term rate change was required to offset the effects of extensive droughts in the southeast and escalating Corps of Engineers operation and maintenance costs. The energy surcharge contained in those rates was to collect the portion of the costs not recovered from these six customers, and the costs were fully collected by September 1993. The parties have filed Motions for Summary Judgment which were argued in October 1992, and a ruling by the District Court is expected at any time.

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Power Marketing Administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	30,533	29,902	27,445	-2,457	-8.2%
Southwestern power administration	30,548	30,748	27,804	-2,944	-9.6%
Western Area Power Administration					
Western area power administration	323,896	276,676	248,691	-27,985	-10.1%
Transfer of current authority from DOI	1,800	4,556	3,774	-782	-17.2%
Total, Western Area Power Administration	325,696	281,232	252,465	-28,767	-10.2%
Falcon and Amistad Operating and Maintenance Fund	—	1,000	970	-30	-3.0%
Colorado River Basin Power Marketing Fund					
Spending authority from offsetting collections	98,066	129,414	120,431	-8,983	-6.9%
Offsetting collections	-98,066	-129,414	-130,431	-1,017	-0.8%
Total, Colorado River Basin Fund	—	—	-10,000	-10,000	—
Subtotal, Power Marketing Administrations:	393,269	347,142	302,684	-44,458	-12.8%
Use of prior year balances and other adjustments	-158,694	-29,710	-38,249	-8,539	-28.7%
Total, Power Marketing Administrations	**234,575**	**317,432**	**264,435**	**-52,997**	**-16.7%**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OPERATION AND MAINTENANCE, SOUTHWESTERN POWER ADMINISTRATION

PROPOSED APPROPRIATION LANGUAGE

For necessary expenses of operation and maintenance of power transmission facilities and of marketing electric power and energy, and for construction and acquisition of transmission lines, substations and appurtenant facilities, and for administrative expenses, including official reception and representation expenses in an amount not to exceed $1,500 connected therewith, in carrying out the provisions of section 5 of the Flood Control Act of 1944 (16 U.S.C. 825s), as applied to the southwestern power area, [$29,778,000] $26,900,000, to remain available until expended; in addition, notwithstanding the provisions of 31 U.S.C. 3302, not to exceed [$4,272,000] $3,787,000 in reimbursements, to remain available until expended.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET SUBMISSION
SOUTHWESTERN POWER ADMINISTRATION

EXECUTIVE BUDGET SUMMARY

Mission

As part of the Department of Energy's Energy Resources cluster, Southwestern Power Administration fulfills requirements of Section 5 of the Flood Control Act of 1944 by marketing and delivering hydroelectric power in a six-State regional area from 24 multi-purpose Federal power projects operated by the U.S. Army Corps of Engineers; by operating a reliable, efficient, and safe transmission system with maximum service to customers; by recovering the Federal power system investment plus interest and all operational costs; and by encouraging energy efficiency for the benefit of the region. The mission will be accomplished by 192 Federal employees, budget authority of $26,900,000, and average year gross revenues of $95,000,000.

Southwestern sells power at wholesale rates primarily to publicly and cooperatively owned electric utilities. To integrate the operation of the hydroelectric generating plants and to transmit power from the dams to its customers, Southwestern maintains 1,380 miles (2,225 kilometers) of high-voltage transmission lines, 24 substations, and 46 microwave and VHF radio sites. Southwestern's headquarters is in Tulsa, Oklahoma; its dispatch center is in Springfield, Missouri; and its maintenance crews are based in Jonesboro, Arkansas; Gore and Tupelo, Oklahoma; and Springfield, Missouri.

Southwestern's overall goal is to market and reliably deliver all available hydropower at the lowest possible cost in an environmentally safe manner in accordance with sound business principles.

The objectives related to this goal are:

- Increase efforts in the electric utility planning process for the region and maintain the system to meet industry reliability standards.
- Seek opportunities to make more efficient use of existing resources in the Southwest region.
- Minimize the rate impact of Federal power system costs and changes in repayment practices that would affect the economy of rural communities.
- Increase efforts in working with competing water users through participation and involvement in regional water resource planning groups and committees to balance the interests of all parties.
- Work with customer utilities to facilitate the continued implementation of an Energy Efficiency and Renewable Resource (EE/RR) program.
- Review Southwestern's organizational structure to ensure that efficiency, effectiveness, and reliability of services are provided in a manner consistent with a Total Quality Management organization.

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- Continue to give early consideration to the environmental consequences of all decisions.
- Take action to maintain a diverse workforce of flexible, problem-solving, empowered employees.
- Achieve system reliability that meets or exceeds contract obligations and customer expectations.

Strategy

Southwestern's mission will be accomplished by four program activities: Operations and Maintenance, Construction, Purchased Power and Wheeling, and Program Direction. In addition, Southwestern proposes to perform work for others activities by requesting reimbursable authority of $3,787,800. The attached graph reflects a funding profile by program for FY 1995 through FY 1997.

FY 1995 Accomplishments (Results of Performance Measurements)

- Southwestern attained the North American Electric Reliability Council (NERC) control performance honor roll with a compliance of 97.0 percent.
- Lost time injury frequency rate was 3.4 compared to the industry average of 2.7.
- Operating costs exceeded the rate of inflation by 2.2 percent due to an increase in maintenance of Southwestern's aging transmission system.
- Because of good water conditions, repayment of the Federal investment was ahead of the planned schedule. Approximately 36 percent of the Federal investment plus interest has been repaid.
- Total proprietary receipts were estimated at $97,006,000. Final audited financial statements received after submission of budget figures reflect actual proprietary receipts of $96,252,500. 7.8 GWh of hydroelectric energy, representing 100 percent of the total available hydropower, was marketed.

FY 1996 Accomplishments (Planned)

- Southwestern will continue to be on the NERC control performance honor roll with the performance of 95 percent or greater.
- Anticipated lost time injury frequency rate is estimated to be 2.43 compared to the industry average of 2.7.
- Operating costs are expected to stay within the rate of inflation.
- Repayment of the Federal investment will remain on or ahead of schedule.
- Total proprietary receipts are estimated at $94,567,000. An estimated 5.5 GWh of hydroelectric energy, representing 100 percent of the total average available hydropower, will be marketed.

FY 1997 Accomplishments (Planned)

- Southwestern will continue to attain the NERC honor roll.
- Lost time injury frequency rate will be comparable to the industry average.

- Operating costs will continue to stay within the rate of inflation.
- Repayment of the Federal investment will remain on or ahead of schedule.
- Total proprietary receipts are estimated at $93,839,000. An estimated 5.5 GWh of hydroelectric energy, representing 100 percent of the total average available hydroelectric power, will be marketed.

Major Changes

- By Congressional request, Southwestern has included an additional program activity called Program Direction. This activity includes all salaries and benefits, all travel, and related expenses. This activity comprises 64 percent of Southwestern's Budget Authority for FY 1997. It represents both direct and indirect program funding.

- In accordance with the Department's Strategic Alignment Initiative, Southwestern has streamlined its organization through a major reorganization of its maintenance function, support service reductions, and process improvements.

- Laws, such as the National Energy Policy Act of 1992 which requires open access to transmission systems, are changing Southwestern's priorities and the way it does business.

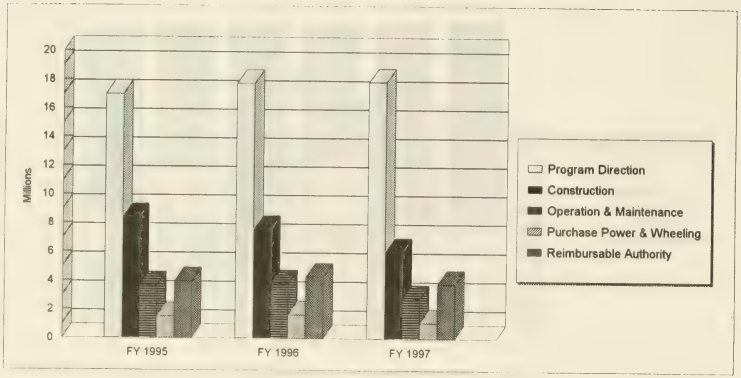
- To meet the challenges of budget reductions and growing requirements to upgrade facilities, Southwestern is working with its customers in evaluating alternative funding mechanisms to replace existing appropriations.

Federal Funding Staffing Profiles

- The attached profiles for funding and staffing levels reflect trends from FY 1992 through FY 1997.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
SOUTHWESTERN POWER ADMINISTRATION

PROGRAM ACTIVITY FUNDING



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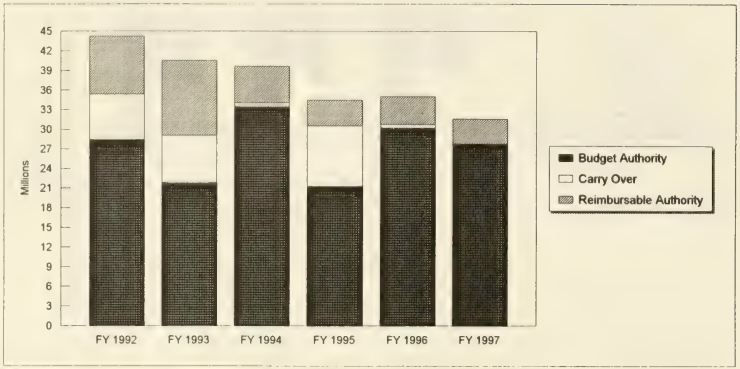
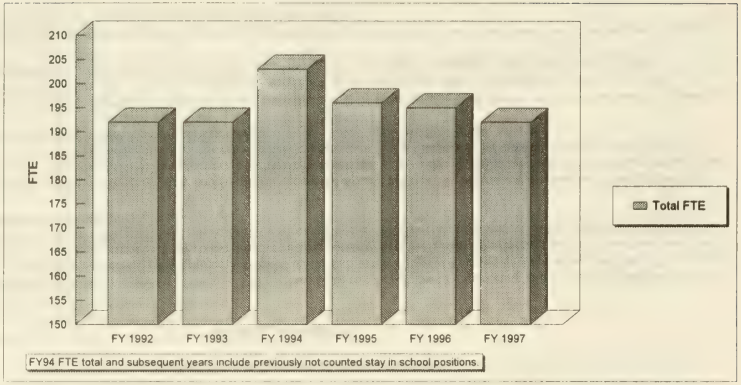
DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
SOUTHWESTERN POWER ADMINISTRATION

PROGRAM FUNDING PROFILE



DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
SOUTHWESTERN POWER ADMINISTRATION

STAFFING PROFILE



SOUTHWESTERN POWER ADMINISTRATION

PROGRAM MISSION

The Southwestern Power Administration fulfills requirements of Section 5 of the Flood Control Act of 1944 by marketing and delivering hydroelectric power in a six-State regional area from 24 multipurpose Federal power projects operated by the U.S. Army Corps of Engineers; by operating a reliable, efficient, and safe transmission system with maximum service to customers; by recovering the Federal power system investment plus interest and all operational costs; and by encouraging energy efficiency for the benefit of the region. The mission will be accomplished by 192 Federal employees, a budget authority of $26,900,000, and the production of approximately $93,839,000 in proprietary receipts.

Southwestern sells power at wholesale rates primarily to publicly and cooperatively owned electric utilities. To integrate the operation of the hydroelectric generating plants and to transmit power from the dams to its customers, Southwestern maintains 1,380 miles (2,225 kilometers) of high-voltage transmission lines, 24 substations, and 46 microwave and VHF radio sites. Southwestern's headquarters is in Tulsa, Oklahoma; its dispatch center is in Springfield, Missouri; and its maintenance crews are based in Jonesboro, Arkansas; Gore and Tupelo, Oklahoma; and Springfield, Missouri.

As in previous years, the budget supports the performance of work for others activities on a fully reimbursable basis. In FY 1997, Southwestern is requesting $3,787,800 in reimbursable authority. This authority reduces Southwestern's need for new appropriations while encouraging initiatives to enhance transmission system capacity and reliability for the delivery of Federal power and to respond to emergency requests for assistance from customers.

Southwestern's program is divided into four program activities: Operations and Maintenance, Construction, Purchased Power and Wheeling, and Program Direction. These activities are described in their respective program performance summaries.

The GOAL of the Southwestern program is to:

Market and reliably deliver all available hydroelectric power at the lowest possible rates in an environmentally safe manner in accordance with sound business principles.

Program Mission: SOUTHWESTERN POWER ADMINISTRATION (Cont'd)

The OBJECTIVES related to this goal are:

- Increase efforts in the electric utility planning process for the region and maintain the system to meet industry reliability standards.
- Seek opportunities to make more efficient use of existing resources in the Southwest region.
- Minimize the rate impact of Federal power system costs and changes in repayment practices that would affect the economy of rural communities.
- Increase efforts in working with competing water users through participation and involvement in regional water resource planning groups and committees to balance the interests of all parties.
- Work with customer utilities to facilitate the continued implementation of an Energy Efficiency and Renewable Resource (EE/RR) program.
- Review Southwestern's organizational structure to ensure that efficiency, effectiveness, and reliability of services are provided in a manner consistent with a Total Quality Management organization.
- Continue to give early consideration to the environmental consequences of all decisions.
- Take action to maintain a diverse workforce of flexible, problem-solving empowered employees.
- Achieve system reliability that meets or exceeds contract obligations and customer expectations.

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PERFORMANCE MEASURES/OUTPUTS:

Southwestern's performance measures reflect a utility business operation and measure the entire program. Measures have been developed in the areas of marketing, repayment, safety, competitiveness, and reliability.

- Amount of Federal hydroelectric power and energy marketed as a percentage of the total available.
- Cumulative principal payments as a percentage of total Federal investment.
- Agency lost time injury frequency compared to the industry average.
- Changes in operating costs compared to change in the inflation rate.
- System performance compared to the North American Electric Reliability Council criteria.

In view of a recent Customer Survey and an initiative to compare our performance with other utilities, both public and private, Southwestern will be re-evaluating the use of these measurements in the future to determine if they best reflect customer requirements and comparable industry measurements.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- Southwestern marketed 100 percent of its available hydroelectric power. Compared to an average 5.5 GWh annually, Southwestern marketed 7.8 GWh in FY 1995.

- Southwestern has streamlined its organization through a major reorganization of its maintenance function, support services reductions, and process improvements.

- Significant benefits were provided to the rural economy of the six-State marketing area through the sale of hydropower to municipalities and rural electric cooperatives at rates which provide them the ability to compete.

- A general customer survey of external customer expectations and service performance was completed. The survey results reflected a high level of satisfaction by customers with Southwestern's performance.

- Technological changes have caused Southwestern to assume greater responsibilities in providing a variety of services to its customers and utility neighbors. Laws, such as the National Energy Policy Act of 1992 which requires open access to transmission systems, are likely to effect significant changes in Southwestern's operations and priorities.

- Customers and interconnected utilities have expressed an increased interest in developing and upgrading facilities through cooperative efforts to permit greater use of Southwestern's transmission system. To meet these growing requirements, financing alternatives are being evaluated and researched in preparation for proposing a funding mechanism to replace existing appropriations.

- Since the 1980s, Southwestern's marketing area has experienced explosive growth in the water-based recreation and tourism industry, increased demand for raw water supply sources, and an increased public interest in protection of the natural environment. Supporters of these interests are increasingly vocal and have strong public support. Southwestern is finding it increasingly difficult to accommodate competing use requests for operational change while meeting Federal contract obligations to deliver electric power and energy but is continuing to be successful in performing the role of balancing all interests and appropriately managing water resources.

SOUTHWESTERN POWER ADMINISTRATION

PROGRAM FUNDING PROFILE[1]

(Dollars in Thousands)

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp. Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Operation and Maintenance					
Operating Expenses	$ 3,654	$ 20,897	$ (17,102)	$ 3,795	$ 2,793
Purchase Power and Wheeling					
Operating Expenses	$ 1,503	$ 1,464	$ 166	$ 1,630	$ 1,095
Construction					
Operating Expenses	$ 8,407	$ 7,931	$ (348)	$ 7,583	$ 6,054
Program Direction					
Operating Expenses	$ 16,984		$ 17,740	$ 17,740	$ 17,862
Subtotal, Southwestern Power Administration	$ 30,548 a/	$ 30,292	$ 456 b/	$ 30,748	$ 27,804
Adjustment	$ (9,240) c/	$ (514) c/	$ (456)	$ (970) c/	$ (904) c/
TOTAL	$ 21,308 d/	$ 29,778	$ 0	$ 29,778	$ 26,900
Staffing (FTEs)					
HQ FTEs	1	1		1	1
Field FTEs	195	194		194	191
Total FTEs	196	195	0	195	192

a/ Includes $204,297 in Purchased Power and Wheeling, $23,288 in Operations and Maintenance, and $132,529 in Construction carried forward to FY 1996.
b/ Prior year deobligations reprogrammed to FY 1996: $166,000 to Purchased Power and Wheeling and $289,895 to Construction.
c/ Use of Prior Year balances.
d/ Reflects rescission of $8,000.

Public Law Authorizations:

Pub. Law 78-534, Flood Control Act of 1944
Pub. Law 95-91, DOE Organization Act of 1977, Section 302
Pub. Law 102-486, Energy Policy Act of 1992

SOUTHWESTERN POWER ADMINISTRATION

PROGRAM FUNDING BY SITE

Laboratory/Plant/Installation	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comparable Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Southwestern Power Administration	$ 30,548	$ 30,292	$ 456	$ 30,748	$ 27,804
Subtotal	$ 30,548	$ 30,292	$ 456 a/	$ 30,748	$ 27,804
Adjustment	$ (9,240) b/	(514) b/	$ (456)	$ (970) b/	$ (904) b/
TOTAL	$ 21,308 c/	$ 29,778	$ 0	$ 29,778	$ 26,900

a/ Reflects reprogramming of prior year deobligations
b/ Use of prior years unobligated balances
c/ Reflects rescission of $8,000.

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SOUTHWESTERN POWER ADMINISTRATION

PROGRAM OBJECT CLASS SUMMARY

		FY 1995 Comp	FY 1995 Non-comp	FY 1996 Comp	FY 1996 Non-comp	FY 1997 Request
Personnel Compensation:						
11.1	Full-time permanent		9,049		9,813	
11.3	Other than full-time permanent		64		212	
11.5	Other Personnel compensation		260		435	
11.8	Other Personnel compensation				1	
11.9	Total Personnel Compensation		$9,373		$10,461	
12.1	Civilian personnel benefits		2,305		2,633	
21.0	Travel and transportation of persons		1,047		1,005	43
22.0	Transportation of things	12	12	21	21	56
23.1	Rental Payments to GSA		680		690	
23.2	Rental payments to others	46	113	144	261	6
23.3	Communications, utilities, and miscellaneous charges		204	85	363	111
24.0	Printing and reproduction		53		75	12
25.1	Consulting services					
25.2	Other services	9,317	12,269	7,845	9,854	5,856
25.3	Purchases of goods and services from Government accounts	6	6	170	170	94
26.0	Supplies and materials	941	1,044	867	922	646
31.0	Equipment	2,980	3,234	3,302	3,542	3,098
32.0	Land and structures					3
42.0	Insurance claims and indemnities	1	1	2	2	7
43.0	Interest and dividends	1	1	5	5	10
99.0	Subtotal, Direct Obligations	$13,304	$30,342 a/	$12,441	$30,204	$ 9,942
	Reimbursable program	3,935	3,935	4,272	4,272	3,788
99.9	TOTAL OBLIGATIONS	$17,239	$34,277	$16,713	$34,476	$13,730
	Reimbursable program	3,935	3,935	4,272	4,272	3,788
	Recovery of prior year obligations	609	609			
	Unobligated balance available, start of year	6,868	9,755	1,253	1,330	
	Unobligated balance available, end of year	1,253	1,330		904	
	Budget Authority	$ 7,080	$21,308	$11,188	$29,778	$ 9,942

a/ Reflects rescission of $8,000.

SOUTHWESTERN POWER ADMINISTRATION

PROGRAM DIRECTION OBJECT CLASS SUMMARY

		FY 1995 Comp	FY 1995 Non-comp	FY 1996 Comp	FY 1996 Non-comp	FY 1997 Request
Personnel Compensation:						
11.1	Full-time permanent	$ 9,049	0	$ 9,813	0	$10,139
11.3	Other than full-time permanent	64	0	212	0	66
11.5	Other Personnel compensation	260	0	435	0	604
11.8	Other Personnel compensation	0	0	1	0	1
11.9	Total Personnel Compensation	$ 9,373	0	$10,461	0	$10,810
12.1	Civilian personnel benefits	2,305	0	2,833	0	2,568
21.0	Travel and transportation of persons	1,047	0	1,005	0	1,044
22.0	Transportation of things		0		0	
23.1	Rental Payments to GSA	680	0	690	0	702
23.2	Rental payments to others	67	0	117	0	4
23.3	Communications, utilities, and miscellaneous charges	204		278	0	283
24.0	Printing and reproduction	53	0	75	0	136
25.1	Consulting services					
25.2	Other services	2,952	0	2,009	0	2,009
25.3	Purchases of goods and services from Government accounts					
26.0	Supplies and materials	103	0	55	0	141
31.0	Equipment	254	0	240	0	165
32.0	Land and structures					
99.0	Subtotal, Direct Obligations	$17,038	0	$17,763	0	$17,862
99.9	TOTAL OBLIGATIONS	$17,038	$ 0	$17,763	$ 0	$17,862
	Unobligated balance available, start of year	$ 2,887		$ 77		904
	Unobligated balance available, end of year	$ 77		$ 904		
	Budget Authority	$14,228	$ 0	$16,590	$ 0	$16,958

SOUTHWESTERN POWER ADMINISTRATION

OPERATIONS AND MAINTENANCE

I. Mission Supporting Goals and Objectives

This activity fulfills the requirements of Section 5 of the Flood Control Act to market and deliver reliable hydroelectric power in a clean and environmentally safe, cost effective manner in a six-State regional area from 24 multi-purpose Federal power projects operated by the U.S. Army Corps of Engineers.

As of September 30, 1995, Southwestern has a cumulative repayable Federal investment, including replacements, of $1,007,331,331. Through FY 1995 $366,421,137 has been repaid in addition to $571,442,086 in interest. FY 1995 gross revenue production was estimated at $99,290,000. Final audited financial statements received after submission of budget figures reflect actual gross revenues of $98,537,000.

Estimates provided for this activity represent projected costs for service contracts, technical services, equipment, materials and supplies used in direct support of the operations and maintenance of the interconnected power system. As requested by Congress, personnel costs and associated expenses previously presented in this activity are now provided for in the Program Direction activity. Since this is the first year for the budget structure change, funding estimates and accomplishments provided are preliminary and may need adjusting in future budget submissions.

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II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Operations and Maintenance	$ 3,654	$ 3,795	$2,793	$- 1,002	-26
Total, Operations and Maintenance	$ 3,654	$ 3,795	$2,793	$- 1,002	-26

III. Performance Summary:

FY 1995 Accomplishments:

- In support of Southwestern's operations, environmental, maintenance, transmission planning, and communications activities, the following technical studies were performed: 42 transmission planning and protective relay, 40 environmental, safety and health, 4 water resource, 4 communications and 5 maintenance.

III. Performance Summary: OPERATIONS AND MAINTENANCE (Cont'd)

- Transmission line activity: contracted 2 aerial patrols of all transmission lines. Purchased 96 poles, 408 cross arms, and 191 insulators. Completed 592 miles of right-of-way clearing.

- Substation activity: contracted mowing at 22 locations.

FY 1996 Accomplishments (to date and planned):

- In support of Southwestern's operations, environmental, maintenance, transmission planning, and communications activities, it is anticipated that the following technical studies will be performed: 40 transmission planning and protective relay, 30 environmental, safety and health, 1 water resource, 3 communications and 3 maintenance.

- Transmission line activity: complete 2 aerial patrols. Purchase the same level of pole, cross arm, and insulator replacement as in FY 1995.

- Substation activity: continue mowing at 22 locations.

FY 1997 Planned Accomplishments:

- In support of Southwestern's operations, environmental, maintenance, transmission planning, and communications activities, it is anticipated that the following technical studies will be performed: 40 transmission planning and protective relay, 30 environmental, safety and health, 3 communications and 3 maintenance.

- Transmission line activity: complete two aerial patrols. Purchase the same level of poles, cross arms, and insulators as in FY 1995.

- Substation activity: continue mowing at 22 locations.

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III. Performance Summary: OPERATIONS AND MAINTENANCE (Cont'd)

Explanation of Funding Changes FY 1996 to FY 1997:

The decrease of approximately $1 million represents a reduction in right-of-way clearing contracts, test equipment, and technical studies used by operations, engineering, environmental, and maintenance personnel to determine impacts of proposed operational changes.

SOUTHWESTERN POWER ADMINISTRATION

PURCHASED POWER AND WHEELING

I. Mission Supporting Goals and Objectives:

This activity purchases non-discretionary energy as necessary to supplement hydroelectric generation to meet contractual obligations for average hydropower generation and any wheeling expenses associated with delivery of this energy to customers not directly connected to the transmission system.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
System Support Requirements	$ 0	$ 0	$ 0	$ 0	0
Other Contractual Requirements	1,503	1,630	1,095	$ - 535	- 33
Total, Purchased Power and Wheeling	$1,503	$1,630	$1,095	$ - 535	- 33

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III. Performance Summary:

FY 1995 Accomplishments:

- Met all power and energy commitments under power sales contracts with utility customers.
- Met 100 percent of energy purchases during average hydropower generation through the use of energy banks.

FY 1996 Accomplishments (to date and planned)

- Continue to meet all power and energy commitments under power sales contracts with utility customers.

III. Performance Summary: PURCHASE POWER AND WHEELING (Cont'd)

- Continue to rely on banked energy for energy purchases during average hydropower generation.

FY 1997 Planned Accomplishments:

- Continue to meet all power and energy commitments under power sales contracts with utility customers.
- Continue to rely on banked energy for energy purchases during average hydropower generation.

Explanation of Funding Changes FY 1996 to FY 1997:

Decrease of $535,000 is due to changes in some power sales contracts that no longer require Southwestern to wheel power and energy to customers not directly connected to Southwestern's transmission system.

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SOUTHWESTERN POWER ADMINISTRATION

CONSTRUCTION

I. Mission Supporting Goals and Objectives:

This activity provides for the construction, modification, and replacement of transmission, substation, switching, and communication facilities which enable Southwestern to meet operational criteria required as a member of the Southwest Power Pool. Southwestern is obligated to maintain and enhance power transmission system safety and reliability, thereby assuring continued safe, reliable delivery of power to preference customers; to encourage new initiatives for more effective use of existing regional generation resources; and to participate with non-Federal interests in joint transmission projects of benefit to the Government.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Transmission System Replacements	$5,224	$6,775	$5,700	$-1,075	-16
Transmission System Improvements	2,541	388	321	- 67	-17
Capital Equipment Not Related to Construction	642	420	33	- 387	-92
Total, Construction	$8,407	$7,583	$6,054	$-1,529	-20

III. Performance Summary:

FY 1995 Accomplishments:

Southwestern exceeded its plan to complete 21 construction projects by completing 20 replacement projects and 8 improvement projects.

III. Performance Summary: CONSTRUCTION (Cont'd)

Continued the following projects:

- Replacement of circuit breakers at three substations.
- Replacement of relay panels at eight substations.
- Installation of relay transceivers at 19 sites on the system.
- Installation of fiber optic terminal equipment at eight sites.
- Design of static wire replacement for three transmission lines.
- Installation of microwave radios at Piggott, Arkansas and Poplar Bluff, Missouri radio sites. Also replacement of the power line carrier from Jonesboro to Center Hill, Center Hill to Paragould, and Paragould to Kennett.
- Installation of telemetering equipment in the Springfield Operations Center and initiation of Supervisory Control and Data Acquisition/Energy Management System (SCADA/EMS) equipment installation.
- Installation of disconnect switches at eight sites.

Completed the following projects:

- Installation of microwave multiplex equipment at two sites.
- Installation of jumper replacement at Carthage, Missouri.
- Construction of Springfield Operations Center.
- Installation of Paragould, Arkansas oil containment trough.

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III. Performance Summary: CONSTRUCTION (Cont'd)

- Installation of breaker at Clarksville, Arkansas.
- Installation of capacitor bank auto tripping at Paragould and Jonesboro, Arkansas and Kennett, Missouri.

Awarded the following:

- Contract for renovations of existing buildings at Springfield, Missouri.
- New supply-and-installation contract for disconnect switches.
- Fiber optic transmission line hardware supply contract.
- Supply-and-installation contract for emergency generators.
- Western Farmers joint participation project to construct a transmission line to deliver power from the Broken Bow Dam to Southwestern's transmission system.

Capital Equipment

- Replaced eight vehicles used for the maintenance and repair of transmission system equipment and facilities.

FY 1996 Planned Accomplishments:

Construction of the following projects will be completed:

- Replacement of breakers and control cables at six sites.

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III. Performance Summary: CONSTRUCTION (Cont'd)

- Replacement of 13 relay panels which provides protection for lines, transformers, buswork, and capacitor banks system wide.
- Replacement of current and potential transformers at three locations in Arkansas and Missouri.
- Replacement of disconnect switches at two locations in Arkansas.
- Installation of parking lot oil containment skimming system.
- Installation of Gore-Webbers Falls terminal equipment in Oklahoma.
- Installation of SCADA/EMS system wide.
- Installation of SCADA/RTU system wide.
- Replacement of surge arresters at five locations in Arkansas and Missouri.
- Renovations to Springfield maintenance buildings in Missouri.
- Replacement of eastern Arkansas and Missouri communication facilities.
- Design of the replacement of static wire with optical ground wire in Arkansas and Missouri.
- Replacement of static wire with optical ground wire in Arkansas and Missouri.
- Installation of emergency generators at radio stations in Arkansas and Missouri.
- Design for the installation of breakers at six locations.

III. Performance Summary: CONSTRUCTION (Cont'd)

Construction contracts will be awarded for the following projects:

- Replacement of relay panels which provides protection for lines, transformers, buswork, and capacitor banks system wide.
- Replacement of control cables at Doniphan substation in Missouri.
- Installation of a secondary containment system at Weleetka Substation in Oklahoma.
- Installation of a basement drainage system at the Weleetka Substation in Oklahoma.
- Installation of digital microwave radios at three sites in Arkansas and Missouri.
- Issuance of delivery order for surge arresters at three sites in Arkansas and Missouri .
- Award of optical ground wire supply contract.
- Modifications at the Broken Bow Substation in Oklahoma.
- Issuance of delivery orders for current and potential transformers for three substations in Arkansas and Missouri.

Capital Equipment

- Replace 23 vehicles used for maintenance and repair of transmission system equipment and facilities.

FY 1997 Planned Accomplishments:

Construction of the following projects will be completed:

- Replacement of relay panels in the areas of line protection, transformer protection, buswork protection, and capacitor bank protection system wide.

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III. Performance Summary: CONSTRUCTION (Cont'd)

- Replacement of control cables at the Doniphan Substation in Missouri.
- Replacement of current and potential transformers at three sites in Arkansas and Missouri.
- Installation of surge arresters at three sites in Arkansas and Missouri.
- Design of relay schemes which provides protection for lines, transformers, buswork, and capacitor banks system wide
- Replacement of static wire with optical ground wire in Arkansas and Missouri.

Supply contracts will be awarded in for the following projects:

- Supply of optical ground wire and transmission hardware on four transmission line sections in Arkansas and Missouri.

Construction contracts will be awarded for the following projects:

- Installation of radio equipment at Bull Shoals, Arkansas; and Hercules and Table Rock, Missouri.
- Replacement of the analog microwave equipment at Table Rock Dam, Missouri.

Capital Equipment

- Replace one vehicle used for the maintenance and repair of transmission system equipment and facilities.

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III. Performance Summary: CONSTRUCTION (Cont'd)

Explanation of Funding Changes FY 1996 to FY 1997

A decrease of $1,075,000 reflects a delay to the outyears in the replacement of analog microwave equipment with digital microwave equipment which enables the new Supervisory Control and Data Acquisition (SCADA) system to monitor power deliveries to customers and assure the reliable operation of power equipment within the substation.

A decrease of $67,000 in improvements reflects the elimination of the Poplar Bluff oil containment project which would prevent the environmental consequences of soil contamination.

A decrease of $387,000 in Capital Equipment not related to Construction reflects a reduction in vehicle replacements, four tractors, two 4X4 vehicles, and one special purpose vehicle, used for field maintenance of transmission lines.

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SOUTHWESTERN POWER ADMINISTRATION

PROGRAM DIRECTION

I. Mission Supporting Goals and Objectives

Southwestern's Program Direction activity provides compensation and all related expenses for 192 Full-Time-Equivalents (FTE) that operate and maintain Southwestern's high voltage interconnected transmission system and associated facilities and those that plan, design, and supervise the construction of replacements, upgrades and additions (capital investments) to the transmission facilities. Also included are personnel who negotiate and administer power marketing contracts, develop wholesale power rates, develop and implement operational arrangements with competing water users, schedule and deliver power to preference customers, implement environment, safety, and health programs, and provide for general administration and management. These employees include, but are not limited to, civil, electrical and electronic engineers, high voltage linemen and electricians, power dispatchers, public utility specialists, environmental and safety specialists, and administrative staff.

Southwestern operates and maintains the transmission system to ensure an adequate supply of reliable energy in a clean and environmentally-safe, cost-effective manner throughout its six-State regional area. Southwestern achieves continuity of service by maintaining its power system at or above industry standards, rapidly restoring service following any system disturbances, mitigating adverse environmental impacts, and maximizing the revenues gained from non-firm energy sales.

Program direction has been grouped into four categories:

Salaries and Benefits provides funding for compensation for wages, cost-of-living increases, overtime, holiday and premium pay, and incentive awards. Also includes Southwestern's share of employee retirement, health and life insurance, workers' compensation for on-the-job injuries, Federal Insurance Contribution Act taxes, and Federal retirement contributions. Benefits also include relocation expenses related to permanent change of duty station, and payments for voluntary separation incentive.

Travel includes funding for the transportation of Government employees, per diem allowances, and incidental expenses incurred in the day-to-day performance of job responsibilities.

Support Services includes funding for contract services which include automated data processing, drafting, and general administrative support.

Other Related Expenses include funding for rental space, telecommunications, utilities and miscellaneous charges, printing and reproduction, training tuition fees, maintenance and repair of office equipment, supplies, materials, and non-capitalized equipment.

PROGRAM DIRECTION (Cont'd)

II. Funding Schedule:

Program Direction (dollars in thousands)	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustment	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salaries and Benefits	$11,678		$13,294	$13,294	$13,378
Travel	1,047		1,005	1,005	1,044
Support Services	2,952		2,009	2,009	2,009
Other Related Expenses	1,307		1,432	1,432	1,431
TOTAL	$16,984		$17,740	$17,740	$17,862
Full-Time Equivalents	196		195	195	192
Average	$ 87		$ 91	$ 91	$ 93

The amounts included in Program Direction represent all salaries and benefits, all travel expenses and related personnel costs for Operations and Maintenance and Construction activities. It should be noted that this value represents not only Southwestern Administrative and/or Overhead expenses but includes direct program activity costs associated with FTE usage. Since this is the first year for the budget structure change, funding estimates and accomplishments provided are preliminary and may need adjusting in future budget submissions.

III. Performance Summary:

FY 1995 Measurable Performance Activities:

- Marketed 7.8 GWh of hydroelectric energy providing an estimated total proprietary receipts of $97,006,000. Final audited financial statements received after submission of budget figures reflect actual proprietary receipts of $96,252,500.
- Continued to be on the North American Electric Reliability Council (NERC) control performance honor roll with a compliance of 97.0 percent.

III. Performance Summary: PROGRAM DIRECTION (Cont'd)

- Completed 100 percent of emergency transmission, substation, and communication system maintenance.

- Transmission line maintenance: Completed 1 ground patrol of transmission lines. Completed 71 percent of planned transmission preventive maintenance.

- Substation maintenance: Maintained 29 transformers, 161 power circuit breakers, 493 substation switches, 373 current and potential transformers, and 72 substation and radio station sites. Completed 38 of a planned 52 transformer and 143 of a planned 185 circuit breaker preventive maintenance activities. Performed routine facility corrective and preventive maintenance at all substation and radio station sites. Installed equipment was to maintain and improve system reliability. Completed the majority of environmental audit response activities.

- Communication system maintenance: Completed 80 percent of the new telemetering system installation that supports the new Supervisory Control and Data Acquisition (SCADA) system.

- Identified hazards and root causes through incident investigations and pursued error reductions and corrections to address lost time injury frequency rate of 3.4 compared to the industry average of 2.7.

- Initiated streamlining plans to reduce staffing by four FTE over the next 2 years.

- Exceeded the rate of inflation by 2.2 percent due to an increase in maintenance of Southwestern's aging transmission system.

- Completed DOE mandated Covey training based on the Stephen Covey book, *Seven Habits of Highly Effective People*, for all employees in support of the Department of Energy's Strategic Quality Goal #2 which emphasizes continuous quality improvement training for all employees through planning, attendance, and active application of Total Quality Management principles.

- Performed external customer survey as required by Executive Order No. 12862, "Setting Customer Service Standards," to survey our customers annually in order to continuously improve customer service and satisfaction. Resulted in measurable performance ratings indicating exceptionally high levels of customer satisfaction.

- Developed specific performance measurements to be used as a basis for a performance-based budgeting and comparison with industry performance.

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- Conducted organizational self-assessment in compliance with DOE goal for all organizations to complete baseline self-assessment by September 30, 1995. Resulted in baseline score that reflects world class performance compared to other organizations in the utility industry.

- Moved from operating support services contracts to performance based contracts with measurable objectives that impact the areas of administration, financing, information resource management, and maintenance.

- Administered a negotiated agreement with International Brotherhood of Electrical Workers (IBEW) and conducted a wage survey to ensure equity of pay scale.

- Continued random drug testing for designated positions and began administration of alcohol testing in accordance with Department of Transportation requirements.

- Completed all mandatory training in the safety and environmental areas.

- Trained 145 individuals in Total Quality Management principles.

- Acquired and installed a Procurement System which provides Electronic Data Interchange (EDI) capability that enables Southwestern to accomplish a National Performance Review (NPR) goal to conduct electronic commerce by enabling the procurement process to be conducted electronically.

- Implemented the Electronic Certification System (ECS) for automated voucher preparation, certification, transmission, and verification processes which resulted in a significant cost reduction.

- Implemented the Optical Disk Scanner project which electronically scans and stores all payment documents which reduces file space and increases time efficiency in records retrieval.

- Installed video conferencing to reduce travel expenses and improve field/headquarters coordination and productivity.

III. Performance Summary: PROGRAM DIRECTION (Cont'd)

FY 1996 Measurable Performance Activities:

- Market an estimated 5.5 GWh of hydroelectric energy providing an estimated total proprietary receipts of $94,567,000.
- Continue to be on the NERC control-performance honor roll with a performance of 95 percent or greater and remain in compliance with applicable industry reliability criteria.
- Complete 100 percent of emergency transmission, substation, and communication system maintenance.
- Transmission line maintenance: Complete 2 aerial patrols and 1 ground line patrol. Complete the same level of pole, cross arm, and insulator replacement as in FY 1995. Implement a herbicide program as part of right-of-way clearing activities and complete 230 miles of planned right-of-way clearing.
- Substation maintenance: Complete and improve on the Maintenance Management Information System (MMIS) planned preventative maintenance as performed in FY 1995 and continue installation of replacement electrical equipment to improve system reliability, complete essential general maintenance projects, and dispose of 6 of an estimated 34 polychlorinated biphenyl (PCB) contaminated equipment items. Complete the remaining environmental audit response activities with focus on continued implementation of environmental programs and procedures.
- Communication system maintenance: Complete communication and telemetering system installations for the new Supervisory Control and Data Acquisition System (SCADA), and complete four fiber optic terminal installations.
- Anticipate lost time injury frequency rate to be 2.4 compared to the industry average of 2.7. Continue corrective action activities including identification of hazards and root causes via effective incident investigations and continuous pursuit of error reduction and corrections.
- Contain operating costs to the rate of inflation.
- Continue streamlining plans to reduce FTE to 195.
- Monitor specific performance goals in support of Southwestern performance-based measurement process.
- Follow-up on process improvement actions suggested by customers in the FY 1995 survey.
- Train self-directed work teams in response to National Performance Review (NPR) initiatives to reduce supervisory ratios.

III. Performance Summary: PROGRAM DIRECTION (Cont'd)

- Continue plans to train all employees on statutory sexual harassment policies.
- Continue to provide all mandatory safety and environmental training.
- Establish policies relative to employee retraining/retention and cross-training in compliance with the National Performance Review initiatives.
- Administer a wage survey to ensure pay equity with private utilities.
- Continue to operate employee assistance programs at five locations to assist employees in dealing with job stress that may occur as the result of restructuring and downsizing.
- Operate Southwestern's portion of DOE's Retirement Buyout program - buyout was offered to six employees.
- Continue to work aggressively to decrease cost of Oklahoma Workers' Compensation Program (OWCP) by redefining jobs.
- Convert the Integrated Accounting System to current technology computing hardware and software.
- Continue Electronic Data Internet (EDI) activity which reduces procurement contract negotiations.
- Expand electronic scanning to other documents for record retrieval and storage reductions.

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FY 1997 Measurable Performance Activities:

- Market an estimated 5.5 GWh of hydroelectric energy providing an estimated total proprietary receipts of $93,839,000.
- Complete 100 percent of emergency transmission, substation, and communication system maintenance.
- Transmission line maintenance: Complete two aerial patrols and one ground patrol. Continue the same level of pole, cross arm, and insulator replacement as in FY 1995. Continue the herbicide program and complete 230 miles of right-of-way clearing.

III. Performance Summary: PROGRAM DIRECTION (Cont'd)

- Substation maintenance: Complete and improve on the MMIS planned preventative maintenance as performed in FY 1996. Continue installation of replacement electrical equipment to improve system reliability, complete essential general maintenance projects, and dispose of 6 of an estimated 28 PCB contaminated equipment items. Focus on continued implementation and improvement of environmental programs and procedures.

- Communication system maintenance: Complete installation of two new fiber optic terminal equipment installations. Begin replacement of existing obsolete microwave terminal equipment.

- Anticipate lost time injury frequency rate to be comparable to the industry average.

- Continue to downsize FTE level to 192 consistent with DOE's strategic alignment initiative.

- Contain operating costs to the rate of inflation.

- Monitor customer satisfaction utilizing survey methods.

- Implement follow-up actions suggested by FY 1995 customer surveys.

- Increase the number of measurable performance indicators.

- Establish guidelines on retraining/retention and cross-training in compliance with the NPR.

- Provide employee assistance programs to all employees during restructuring.

- Continue computer equipment conversion.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

Increase of $84,000 in salaries and benefits is due to the net result between increases in cost of living and overtime and decreases associated with fewer temporary employees and unfilled vacancies.

Increase of $39,000 in travel costs is the result of inflation.

Decrease of $1,000 in Other Related Expenses reflects a reduction in supplies and materials.

V. Explanation of Average FTE costs:

The average FTE costs in FY 1996 represents salaries and benefits, travel expenses, and related personnel costs such as space rental, utilities, material and supplies, telecommunications, building maintenance, and equipment for overall program implementation..

The variance of $756,000 from FY 1995 actual costs to FY 1996 budgeted estimates is due to unfilled vacancies which occurred in FY 1995.

The variance of $122,000 from FY 1996 to FY 1997 is due primarily to inflationary factors.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
POWER MARKETING ADMINISTRATION
(dollars in thousands)

REVENUE AND RECEIPT REPORT

SOUTHWESTERN POWER ADMINISTRATION

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Southwestern Power Administration							
Gross Revenues	$99,290	$99,667	$98,639	$95,718	$ 95,329	$94,547	$93,635
Receipts:							
Sale and transmission of electric energy	$97,006	$94,567	$93,839	$91,518	$ 92,429	$91,847	$91,135
Net billing amt. credited back to Appro. as an offsetting receipt	$ 2,284	$ 5,100	$ 4,800	$ 4,200	$ 2,900	$ 2,700	$ 2,500
Percent of sales to preference customers	100%	100%	100%	100%	100%	100%	100%
Energy Sales from Power Marketed (billions of kilowatt hours)	7.8	5.5	5.5	5.4	5.4	5.4	5.4

NOTE: Final audited FY 1995 financial statements received after submission of budget figures reflect actual gross revenues of $98,537,000 and actual proprietary receipts of $96,252,500.

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DEPARTMENT OF ENERGY
1997 CONGRESSIONAL BUDGET REQUEST
POWER MARKETED, WHEELED, OR EXCHANGED BY PROJECT

SOUTHWESTERN POWER ADMINISTRATION

PROJECT	STATE	NO. OF PLANTS	INSTALLED CAPACITY (KW)	1995 ACTUAL ENERGY (GWH)	1996 ESTIMATED ENERGY (GWH)	1996 ESTIMATED ENERGY (GWH)
POWER MARKETED						
(INTERCONNECTED SYSTEM)	MISSOURI	4	463,200	2,429	1,704	1,704
	ARKANSAS	9	1,021,100	1,401	1,012	1,011
	OKLAHOMA	7	514,100	1,558	1,118	1,118
	TEXAS	2	100,000	1,000	692	692
	LOUISIANA			515	373	373
	KANSAS			561	426	426
SUBTOTALS		22	2,098,400	7,464	5,325	5,324
ISOLATED						
ROBERT D WILLIS PROJECT						
SAM RAYBURN PROJECT	TEXAS	2	59,400	126	76	76
50% TO TX; 50% TO LA	LOUISIANA			126	76	76
SUBTOTALS		2	59,400	252	152	152
TOTAL, POWER MARKETED		24	2,157,800	7,716	5,477	5,476
POWER WHEELED AND EXCHANGED						
WHEELED (MW)				532	489	478
EXCHANGED (GWH)				246	175	187

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

SYSTEM STATISTICS

SOUTHWESTERN POWER ADMINISTRATION

	1995 ACTUAL	1996 ESTIMATE	1997 ESTIMATE
GENERATING CAPACITY:			
INSTALLED CAPACITY (KW)	2,157,800	2,157,800	2,157,800
PEAK CAPACITY (KW)	2,092,500	2,092,500	2,092,500
GENERATING STATIONS:			
GENERATING PROJECTS (NO.)	24	24	24
SUBSTATIONS/SWITCHYARDS (NO.)	24	24	24
SUBSTATIONS/SWITCHYARDS (KVA CAPACITY)	1,026,900	1,026,900	1,026,900
AVAILABLE ENERGY:			
ENERGY GENERATED (MEGAWATT-HOURS)	7,754,593	5,171,400	5,186,000
ENERGY RECEIVED (MEGAWATT-HOURS)	22,304	305,100	289,700
ENERGY AVAILABLE FOR MARKETING (MEGAWATT-HOURS)	7,776,897	5,476,500	5,475,700
TRANSMISSION LINES (CIRCUIT MILES):			
161 KV	1,119	1,119	1,119
138 KV	164	164	164
69 KV	99	99	99
TOTAL CIRCUIT MILES	1,382	1,382	1,382

DEPARTMENT OF ENERGY
1997 CONGRESSIONAL BUDGET REQUEST

PENDING LITIGATION

SOUTHWESTERN POWER ADMINISTRATION

Nickle v. O'Leary. Case No. 95-C-215-B (D.Okla.; filed March 7, 1995) seeking damages in the amount of $1,000,000.00 under a Title VII sexual discrimination action. Hearing date and Pretrial Conference set for April 12, 1996. Jury trial set for May 2, 1996.

Willey v. O'Leary. Case No. 95-3154-CV-S-4 (D.Mo; filed May 3, 1995). An age discrimination case seeking judgement for promotion to the job applied for damages exceeding the sum of $50,000.00 for compensation for the loss of wages and benefits, back pay and front pay, liquidated damages, compensatory damages, punitive damages, attorney fees and costs incurred.

Vanover v. O'Leary. Case No. 95-CV-916-K (D.Okla.; filed September 13, 1995) seeking judgement in the amount of $300,000.00, for non-pecuniary losses, retroactive promotion for position denied, attorney fees and costs. Jury trial has not been set at this time.

Western Area Power Administration

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[redacted]

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Power Marketing Administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	30,533	29,902	27,445	-2,457	-8.2%
Southwestern power administration	30,548	30,748	27,804	-2,944	-9.6%
Western Area Power Administration					
Western area power administration	323,896	276,676	248,691	-27,985	-10.1%
Transfer of current authority from DOI	1,800	4,556	3,774	-782	-17.2%
Total, Western Area Power Administration	325,696	281,232	252,465	-28,767	-10.2%
Falcon and Amistad Operating and Maintenance Fund	——	1,000	970	-30	-3.0%
Colorado River Basin Power Marketing Fund					
Spending authority from offsetting collections	98,066	129,414	120,431	-8,983	-6.9%
Offsetting collections	-98,066	-129,414	-130,431	-1,017	-0.8%
Total, Colorado River Basin Fund	——	——	-10,000	-10,000	——
Subtotal, Power Marketing Administrations:	393,269	347,142	302,684	-44,458	-12.8%
Use of prior year balances and other adjustments	-158,694	-29,710	-38,249	-8,539	-28.7%
Total, Power Marketing Administrations	**234,575**	**317,432**	**264,435**	**-52,997**	**-16.7%**

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
CONSTRUCTION, REHABILITATION, OPERATION AND MAINTENANCE, WESTERN AREA POWER ADMINISTRATION

PROPOSED APPROPRIATION LANGUAGE

(Including Transfer of Funds)

For carrying out the functions authorized by title III, section 302(a)(1)(E) of the Act of August 4, 1977 (42 U.S.C. 7101, et seq.), and other related activities including conservation and renewable resources programs as authorized, including official reception and representation expenses in an amount not to exceed $1,500, [$257,652,000] $217,891,000, to remain available until expended, of which [$245,151,000] $209,996,000 shall be derived from the Department of Interior Reclamation Fund: *Provided*, That of the amount herein appropriated, [$5,283,000] $5,432,000 is for deposit into the Utah Reclamation Mitigation and Conservation Account pursuant to title IV of the Reclamation Projects Authorization and Adjustment Act of 1992: *Provided further*, That the Secretary of the Treasury is authorized to transfer from the Colorado River Dam fund to the Western Area Power Administration [$4,556,000] $3,774,000, to carry out the power marketing and transmission activities of the Boulder Canyon project as proved in section 104(a)(4) of the Hoover Power Plant Act of 1984, to remain available until expended.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
FALCON AND AMISTAD OPERATION AND MAINTENANCE FUND, WESTERN AREA POWER ADMINISTRATION

PROPOSED APPROPRIATION LANGUAGE

For operation, maintenance, and emergency costs for the hydroelectric facilities at the Falcon and Amistad Dams, [$1,000,000] $970,000, to remain available until expended and to be derived from the Falcon and Amistad Operating and Maintenance Fund of the Western Area Power Administration, as provided in section 423 of the Foreign Relations Authorization Act, Fiscal Years 1994 and 1995.

PROGRAM MISSION

Western Area Power Administration (Western) markets Federal hydropower over a complex, interconnected transmission system to provide benefits to millions of people throughout a 1.3-million-square-mile area in the central and western United States. Western provides electric power to nearly 600 customers.

MISSION

Western's mission is to market and transmit reliable low-cost electric power, provide related services, and encourage efficient energy management in an environmentally sound manner.

Our vision: Western will meet the challenges of the changing utility industry through...

- Quality, customer-focused service
- Competitive pricing
- Excellent business practices
  - efficient, flexible, well-trained workforce
  - optimal resource use
  - streamlined processes and organization
  - strategic partnering
- Good stewardship/citizenship

Our objectives related to this vision are:

- To partner with our customers, to help them secure low-cost resources and transmission alternatives to assure stability of the long-term power supply.
- To be an organization of highly-skilled, customer-oriented people who carry out our mission in concert with our core values and leadership philosophy.
- To take an active role with other resource agencies to sustain the marketability of the Federal hydroelectric resource so that power repayment obligations will be met through power sales.
- To limit increases in annual operating expenses to no greater than the rate of inflation to assure stability in our power rates and to remain competitive in the changing utility industry

PROGRAM MISSION - WESTERN AREA POWER ADMINISTRATION (cont'd)

STRATEGY

The utility industry is changing, resulting in decreasing wholesale power costs and increased competition. Western is taking steps now to ensure that we remain competitive in the future and will generate the revenue necessary to repay the Federal power-related investment.

We are maintaining existing relationships and entering into new partnerships with our customers. We are expanding these partnerships to include the generating agencies (Bureau of Reclamation, Corps of Engineers, and International Boundary and Water Commission) to help our customers secure low-cost resources and transmission alternatives to assure stability of the long-term power supply. We have involved our power customers in our decision-making processes and in our planning processes for both annual costs and planned capital investments in our transmission system. We are working toward improved customer understanding of the development of our power rates.

We are encouraging long-term planning and efficient energy use by our customers through implementation of the Energy Planning and Management Program, development of Integrated Resource Plans as required by the Energy Policy Act of 1992, and providing technical assistance through our Energy Services program.

As a cost conscious business, Western continually seeks opportunities to improve processes and stabilize operating costs. Western has initiated a transformation process to reorganize, restructure, and reengineer Western and its processes to position the agency to meet the competitive challenge. By the end of FY 1998, Western will have reduced the number of Federal employees and the level of funding for support service contracts. We will have streamlined our processes by reducing redundancies at every level possible and by reducing bureaucracy and organizational layers. We will strive to be an organization of responsible, highly-skilled, productive, customer- and stakeholder-oriented employees who carry out our mission in concert with our core values and leadership philosophy.

Western will continue to use improved technology in power system components and test equipment to extend maintenance cycles and reduce maintenance times. We are embarking on a benchmarking process to measure our performance with the best in the industry. In the interim we have set safety, cost, and reliability goals that all Western employees are working to achieve.

In partnership with customers and key environmental groups, we will identify significant environmental issues that will involve us over the next decade. Power operations are being managed to encourage the survival of fish and wildlife, and generation is being foregone to support habitats to encourage reproduction and survival of endangered fish and birds. The environmental evaluation and clean up of about 1,100 sites will continue through 2005.

In concert with our customers, Western strives to plan future system replacement and upgrades at a level that will not cause power rate increases, but at the same time assures a reliable system that is not the "weak link" of the interconnected transmission system of the West.

Proposals for construction of new facilities must meet at least one of three criteria before being considered for construction:
- increased revenues from the new facilities must exceed the annual cost, or
- customers must benefit sufficiently to support the new facilities even if a possible rate increase may result, or
- the new facilities will be funded by others.

PROGRAM MISSION - WESTERN AREA POWER ADMINISTRATION (cont'd)

We will pursue opportunities to enhance our revenue generating capability through integration of resources and marketing ancillary services such as spinning reserves

PERFORMANCE MEASURES:

Performance measures related to Western are based on outputs and outcomes. Data for each output is collected annually. These outputs are aimed at achieving specific outcomes including establishment of rates sufficient to make full and timely payment to the U.S. Treasury; maintenance of the health and safety of all employees; and development and achievement of the operation of a reliable, low-cost, environmentally-sound power system which facilitates competitive, efficient and reliable power deliveries. Outputs include:

1. OPERATING EFFECTIVENESS: Area Control Error (ACE) percentage exceeds the National Electric Reliability Council performance standard of 90 percent. Western's FY 1995 ACE percentage was 99.0.

2. SAFETY: Western's lost workday frequency rate in FY 1995 was 0.8, which is lower than the average for the electric utility industry as reported by the National Safety Council, or 2.38 cases per 200,000 hours worked.

3. COST GROWTH: The change in actual regular operation and maintenance obligations from one year to the next is no greater than the annual rate of inflation for the same period.

4. . PRINCIPAL PAYMENT: Principal repayment to the U.S. Treasury in any given fiscal year is equal to, or greater than, the planned principal repayment.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

- We are reducing our full time equivalent (FTE) employees from a FY 1994 level of 1,504 to 1,329 in FY 1998 or 12 percent.

- We are reducing our support service employee level from FY 1994 level of 601 to 265 in FY 1998 or 60 percent.

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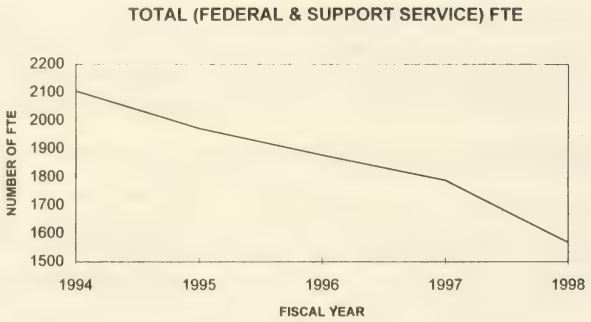
- The overall employee reduction is 24 percent, or 511 employees.



- We are limiting increases in annual operation and maintenance costs of the high voltage electrical and communications systems to no greater than the rate of inflation - our FY 1997 requested program level for Operation and Maintenance Activity is less than our FY 1994 request.

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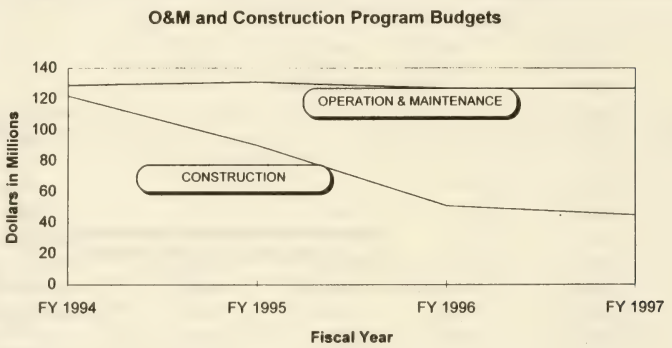
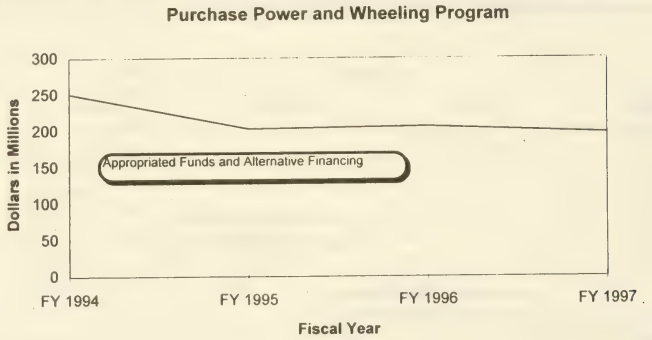
- In concert with our customers, we have prioritized,and in some cases, delayed or canceled the replacements and upgrades included in our Construction and Rehabilitation Activity. Our requested program has been reduced from $121 million in FY 1994 to $45 million in FY 1997.



- The equipment, contracts, and related expenses for the Operation and Maintenance and Construction and Rehabilitation activities continue to be separately quantified under the respective activity. However, the salary and related expenses for the Operation and Maintenance and Construction and Rehabilitation Activities are now consolidated and quantified under the heading of Program Direction in the FY 1997 budget request.

- Power purchases have been reduced from 9.0 billion kilowatt-hours in FY 1994 to 6.4 billion kilowatt-hours in FY 1997. The reason for this decrease is two-fold. First, the amount of purchases is dictated by the amount of generation available, which is contingent on water conditions in the major river systems within Western's service area. In FY 1997, reservoir levels in all of Western's service areas are expected to be near average following significant gains in FY 1995. Second, due to increased competitiveness in California markets, power customers are not requesting the full amount of energy Western has committed to provide. Alternative methods of financing continue to be pursued to reduce the need for appropriations.

The most recent agreement was for energy banking arrangements for the Parker-Davis Project in the southwest. The total Purchase Power and Wheeling program has decreased from $251 million in FY 1994 to $197 million in FY 1997. Of the $197 million, only 38 percent, or $74 million is from appropriations.



- We are striving to position ourselves for the challenges posed by a changing utility industry, with increased competition and requests for transmission access that support the Energy Policy Act of 1992.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WESTERN AREA POWER ADMINISTRATION
(dollars in thousands)

CONSTRUCTION, REHABILITATION, OPERATION, AND MAINTENANCE

PROGRAM FUNDING PROFILE

Sub-program	FY 1995 Comparable Appropriation		FY 1996 Original Appropriation	FY 1996 Real and Comp Adjustments		FY 1996 Comparable Adjusted	FY 1997 Budget Request
Construction, Rehabilitation, Operation and Maintenance Account							
Program Direction	$114,215	1/	$ 0	$119,557	1/ 7/ 8/	$119,557	$ 109,028
Operation and Maintenance	42,648	2/	128,958	-96,376	7/ 8/	32,582	34,006
Purchase Power and Wheeling	101,506		94,562	0		94,562	74,235
Construction and Rehabilitation	62,192	3/	51,125	-21,877	7/	29,248	29,764
Utah Mitigation and Conservation	5,135		5,283	0		5,283	5,432
Total Program, Operating Expenses	$325,696		$279,928	$ 1,304		$ 281,232	$ 252,465
Planned Use of Prior Year Balances	-141,344	4/	-17,720	-961	8/	-18,681	-30,800
Total Budget Authority Request	$184,352	5/	$262,208	$ 343		$ 262,551	$ 221,665
Permanent Budget Authority	($ 1,800)		($ 4,556)			($ 4,556)	($ 3,774)
Current Budget Authority	($182,552)		($257,652)			($ 257,995)	($217,891)
Permanent Authority not Supported by Transfer from DOI	-5,672	6/					

Public Law Authorizations:

P.L. 57-161, "The Reclamation Act of 1902"
P.L. 66-389, "Contributed Funds Act" (1921)
P.L. 76-260, "Reclamation Projects Act of 1939"
P.L. 80-790, "Emergency Fund Act of 1948"
P.L. 95-91, "Department of Energy Organization Act" (1977)
"Economy Act" of 1932, as amended
P.L. 98-381, "Hoover Power Plant Act of 1984"
P.L. 102-486, "Energy Policy Act of 1992"
P.L. 102-575, "Reclamation Projects Authorization and Adjustment Act of 1992"
"Interior Department Appropriation Act of 1928" (44 stat.957)

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1/ On a comparable basis, $338,000 in FY 1995 and $343,000 in FY 1996 were realigned from DOE Administration to Western's Program Direction.

2/ Reflects $626,000 reduction for rescission.

3/ Reflects $3,145,000 reduction for rescission.

4/ Reflects $26,300,000 reduction for rescission and $10,000,000 transfer to Energy Supply R&D.

5/ Congressional rescission ($30,071,000) and transfer ($10,000,000) actions were reflected as a reduction in budget authority in accordance with the Congressional Base Table.

6/ Only partial transfer from DOI for permanent budget authority was made. $7,472,000 ($3,992,000 for O&M and $3,480,000 for PP&W) of permanent budget authority was included in FY 1995 Congressional Request. Only $1,800,000 was received from DOI for O&M activity.

7/ Salaries and related expenses for the Operation and Maintenance ($96,376,000) and Construction and Rehabilitation ($21,877,000) were combined under Program Direction.

8/ $961,000 of permanent authority unobligated balances was realigned from Purchase Power and Wheeling to Operation and Maintenance and subsequently realigned to Program Direction.

9/ Crosswalk between budget authority and planned program:

	FY 1995 Adjusted		FY 1996 Adjusted		FY 1997 Request
Program Direction					
Current Budget Authority	$103,192		$106,204		$101,107
Permanent Budget Authority	1,800		2,400		3,221
Subtotal, Budget Authority	**$104,992**		**$108,604**		**$104,328**
Unobligated Balances, Start	11,739	a/	12,797	i/	4,700
Unobligated Balances, Internal Reprogramming	0		961		
Unobligated Balances, End	-12,797	b/	-4,700	j/	0
Subtotal, Actual Program	**$103,934**		**$117,662**		**$109,028**
Subtotal Budget Authority	104,992		108,604		104,328
Planned Use of Balances	9,223		10,953		4,700
Subtotal, Planned Program	**$114,215**		**$119,557**		**$109,028**

Operation and Maintenance (O&M)					
Current Budget Authority	$ 52,230		$ 31,279		$ 31,953
Transfer to DOE	-5,456	c/	0		0
Rescission	-4,126		0		0
Permanent Budget Authority	0		1,303		553
Subtotal Budget Authority, O&M	**$ 42,648**		**$ 32,582**		**$ 32,506**
Unobligated Balances, Start of Year	490	d/	13,300		1,500
Prior Year Recovery	455		0		0
Unobligated Balances, End of Year	-13,300	e/	-1,500		0
Subtotal Actual Program, O&M	**$ 30,293**		**$ 44,382**		**$ 34,006**
Subtotal Budget Authority, O&M	$ 42,648		$ 32,582		**$ 32,506**
Planned Use of Prior Year Balances	0		0		1,500
Subtotal Planned Program, O&M	**$ 42,648**		**$ 32,582**		**$ 34,006**
Purchase Power and Wheeling (PP&W)					
Current Budget Authority	0		93,709		59,635
Rescission	-10,000		0		0
Transfer to DOE	-2,500		0		0
Permanent Budget Authority	0		853		0
Subtotal Budget Authority, PP&W	**$-12,500**	c/	**$ 94,562**		**$ 59,635**
Unobligated Balances, Start of Year	63,070	f/	3,739	k/	14,600
Unobligated Balances, Internal Reprogramming	0		-961		0
Prior Year Recovery	6,032		0		0
Use of Prior Year Balances	15,876	g/	0		0
Unobligated Balances, End of Year	- 3,739	h/	-14,600		0
Subtotal Actual Program, PP&W	**$ 68,739**		**$ 82,740**		**$ 74,235**
Subtotal Budget Authority, PP&W	**$-12,500**		**$ 94,562**		**$ 59,635**
Planned use of prior year balances	114,006		0		14,600
Subtotal Planned Program	**$101,506**		**$ 94,562**		**$ 74,235**

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Construction and Rehabilitation (C&R)			
Budget Authority	$ 62,066	$ 21,520	$ 19,764
Transfer to DOE	2,044 c/	0	0
Rescission	-15,945	0	0
Subtotal Budget Authority, C&R	**$ 44,077**	**$ 21,520**	**$ 19,764**
Unobligated Balances, Start of Year	17,152	28,620	10,000
Prior Year Recovery	1,410	0	0
Unobligated Balances, End of Year	-28,620	-10,000	0
Subtotal Actual Program, C&R	**$ 34,019**	**$ 40,140**	**$ 29,764**
Subtotal Budget Authority (C&R)	$ 44,077	$ 21,520	$ 19,764
Planned Use of Prior Year Balances	18,115	7,728	10,000
Subtotal Planned Program, C&R	**$ 62,192**	**$ 29,248**	**$ 29,764**
Utah Mitigation and Conservation	**$ 5,135**	**$ 5,283**	**$ 5,432**
Total Budget Authority	**$184,352**	**$262,551**	**$221,665**

Actual Use of Prior Year Balances

	FY 1995	FY 1996	FY 1997			
- Program Direction	$ -1,058	$ 9,058	$ 4,700			
- O&M	-12,355	11,800	1,500			
- PP&W	81,239	-11,822	14,600			
- C&R	-10,058	18,620	10,000			
Total	$ 57,768	$ 27,656	$ 30,800	57,768	27,656	30,800
Total Actual Program				**$242,120**	**$290,207**	**$252,465**
Difference between Planned Use of Prior Year Balances ($141,344,000) and Actual Use of Prior Year Balances ($57,768,000) in FY 1995				83,576	-8,975	0

	Actual	Planned	Difference
- Program Direction	$-1,058	$ 0	$ 1,058
- O&M	-12,355	9,223	21,578
- PP&W	81,239	114,006	32,767
- C&R	-10,058	18,115	28,173
Total	$57,768	$141,344	$ 83,576

Difference between Planned Use of Prior Year Balances
($18,681,000) and Actual Use of Prior Year Balances
($27,656,000) in FY 1996

	Actual	Planned	Difference
- Program Direction	$9,058	$ 10,953	$ 1,895
- O&M	11,800	0	-11,800
- PP&W	-11,822	0	+11,822
- C&R	18,620	7,728	-10,892
Total	$ 27,656	$ 18,681	$ -8,975

Total Planned Program	**$325,696**	**$281,232**	**$252,465**
Planned Use of Prior Year Balance	-141,344	-18,681	-30,800
Total Budget Authority	**$184,352**	**$262,551**	**$221,665**

a/ $10,223,000 Current Budget Authority. $1,516,000 Permanent Budget Authority.
b/ $12,007,000 Current Budget Authority. $790,000 Permanent Budget Authority.
c/ Congressional action includes $30,071,000 rescission and $10,000,000 transfer from Western to the Energy Supply R&D activities. These actions are reflected as reductions to current budget authority in the budget request in accordance with the Congressional Base Table
d/ $490,000 Permanent Budget Authority.
e/ $13,300,000 Current Budget Authority
f/ Includes $14,628,000 from energy settlement, $46,792,000 from capacity settlement, $1,607,000 permanent authority for Boulder Canyon, and $43,000 other unobligated balances. Due to declining construction program activities, $1,294,000 originally intended to finance the construction program will remain in the purchase power and wheeling program.
g/ Includes use of $6,732,000 credits applied from the Western/PG&E settlement, use of $6,799,000 uncosted balances arising mostly from the Western/PG&E settlement, and use of $2,345,000 refund for overpayment of energy purchased in the 1980's.
h/ $2,178,000 Current Budget Authority. $1,561,000 Permanent Budget Authority.
i/ $12,007,000 Current Budget Authority. $1,751,000 Permanent Budget Authority, including $961,000 realigned from purchase power and wheeling activity.
j/ $4,700,000 Current Budget Authority.
k/ $2,178,000 Current Budget Authority. $600,000 Permanent Budget Authority (reflects $961,000 realigned to Operation and Maintenance activity and subsequently realigned to Program Direction)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WESTERN AREA POWER ADMINISTRATION
(dollars in thousands)

CONSTRUCTION, REHABILITATION, OPERATION, AND MAINTENANCE

PROGRAM FUNDING BY SITE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Western Area Power Administration	$ 325,696	$ 279,928	$ 1,304	$ 281,232	$ 252,465
Planned Use of Prior Year Balances	-141,344	-17,720	-961	-18,681	-30,800
TOTAL	$ 184,352	$ 262,208	$ 343	$ 262,551	$ 221,665

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WESTERN AREA POWER ADMINISTRATION
CONSTRUCTION, REHABILITATION, OPERATION AND MAINTENANCE ACCOUNT
PROGRAM DIRECTION OBJECT CLASS SUMMARY
(Dollars in Thousands)

Direct Obligations:		FY 1995 Comp	FY 1995 Non-comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997 Request
11.1	Full-time permanent	$52,604	$ 0	$53,415	$ 0	$ 56,128
11.3	Other than full-time permanent	905	0	936	0	966
11.5	Other personnel compensation	3,054	0	3,160	0	3,259
11.9	Total Personnel Compensation	$56,563	$ 0	$57,511	$ 0	$ 60,353
12.1	Civilian personnel benefits	12,439	0	14,727	0	12,361
13.0	Benefits for former personnel	1,050	0	6,117	0	365
21.0	Travel and transportation of persons	4,192	0	4,935	0	4,850
22.0	Transportation of things	2,557	0	2,569	0	2,491
23.1	Rental payments to GSA	3,821	0	3,392	0	3,486
23.3	Communications, utilities, and miscellaneous charges	3,174	0	3,130	0	3,075
24.0	Printing and reproduction	272	0	319	0	326
25.1	Advisory and assistance services	957	0	100	0	100
25.2	Other services	16,136	0	20,397	0	18,238
26.0	Supplies and materials	1,757	0	2,543	0	1,993
31.0	Equipment	1,016	0	1,922	0	1,390
99.9	Total, Direct Obligations	$103,934	$ 0	$117,662	$ 0	$109,028
	Recovery of prior year obligations	0	0	0	0	0
	Unobligated balances available, start of year	-11,739	0	-12,797	0	-4,700
	Unobligated balances available, internal reprogramming	0	0	-961	0	0
	Unobligated balances available, end of year	+12,797	0	+4,700	0	0
	Budget Authority	$104,992	$ 0	$108,604	$ 0	$104,328

WESTERN AREA POWER ADMINISTRATION
CONSTRUCTION, REHABILITATION, OPERATION AND MAINTENANCE ACCOUNT
OBJECT CLASS SUMMARY EXCLUDING PROGRAM DIRECTION
(Dollars in Thousands)

Direct Obligations:		FY 1995 Comp	FY 1995 Non-comp	FY 1996 Comp	FY 1996 Non-comp	FY 1997 Request
11.1	Full-time permanent	$ 0	$52,604	$ 0	$ 53,415	$ 0
11.3	Other than full-time permanent	0	905	0	936	0
11.5	Other personnel compensation	0	3,054	0	3,160	0
11.9	Total Personnel Compensation	$ 0	$56,563	$ 0	$57,511	$ 0
12.1	Civilian personnel benefits	0	12,439	0	14,727	0
13.0	Benefits for former personnel	0	1,050	0	6,117	0
21.0	Travel and transportation of persons	0	4,192	0	4,935	0
22.0	Transportation of things	0	2,557	0	2,569	0
23.1	Rental payments to GSA	0	3,821	0	3,392	0
23.3	Communications, utilities, and miscellaneous charges	0	3,174	0	3,130	0
24.0	Printing and reproduction	0	272	0	319	0
25.1	Advisory and assistance services	2,553	3,510	3,781	3,881	2,750
25.2	Other services	66,007	81,805	105,800	125,854	91,903
25.3	Purchases of goods & services from Gov't accounts	1,579	1,579	1,435	1,435	2,174
26.0	Supplies and materials	3,969	5,726	5,898	8,441	6,075
31.0	Equipment	8,073	9,089	15,633	17,555	14,291
32.0	Lands and structures	34,717	34,717	29,205	29,205	20,802
41.0	Grants, subsidies and contributions	5,135	5,135	10,783	10,783	5,432
42.0	Insurance claims and indemnities	277	277	10	10	10
99.0	Subtotal, Direct Obligations	$122,310	$225,906	$172,545	$289,864	$143,437
	Reimbursables	70,359	70,359	126,602	126,602	108,958
99.9	Total, Obligations	$192,669	$296,265	$299,147	$416,466	$252,395
	Reimbursable Obligations	-70,359	-70,359	-126,602	-126,602	-108,958
	Recovery of prior year obligations	-7,897	-7,897	0	0	0
	Unobligated balances available, start of year	-80,712	-92,451	-45,659	-58,456	-26,100
	Unobligated balances available, internal reprogramming	0	0	+961	0	0
	Unobligated balances available, end of year	+45,659	+58,456	+26,100	+30,800	0
	Budget Authority	$79,360	$184,014	$153,947	$262,208	$117,337

WESTERN AREA POWER ADMINISTRATION

PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities:

Western's Program Direction activity provides compensation and all related expenses for the workforce that operates and maintains Western's high voltage interconnected transmission system and associated facilities and those that plan, design, and supervise the construction of replacements, upgrades and additions (capital investments) to the transmission facilities. These employees include, but are not limited to, civil, electrical and electronic engineers, high voltage linemen and electricians, power dispatchers, public utility specialists, environmental and safety specialists, and administrative staff.

Western operates and maintains the transmission system to ensure an adequate supply of reliable energy in a clean and environmentally-safe, cost-effective manner throughout its 15-state service territory. Western achieves continuity of service by maintaining its power system at or above industry standards, rapidly restoring service following any system disturbances, mitigating adverse environmental impacts, performing clean-up activities, and maximizing the revenues gained from non-firm energy sales.

Western markets power generated at 55 hydropower plants which are operated primarily by the Bureau of Reclamation, the Corps of Engineers, and the International Boundary and Water Commission. Western also markets the United States' entitlement from the Navajo coal-fired powerplant near Page, Arizona.

In concert with our customers, Western reviews required replacements and upgrades to its existing infrastructure to sustain reliable power delivery to our customers and to contain annual maintenance expenses. The timing and scope of these replacements and upgrades are critical to assure that Western's facilities do not become the "weak link" in the interconnected system. Historically, Western pursued opportunities to join with neighboring utilities to jointly finance construction activities, which result in realized cost savings and increased efficiencies for all participants. The funding for the construction contracts and government-furnished equipment for the transmission lines, substations and related facilities is provided under the Construction and Rehabilitation activity.

Program direction has been grouped into four categories:

Salaries and Benefits: Funding for wages, including geographic differentials, pay raises (including legislated, negotiated, and administratively-determined), overtime, holiday and premium pay, and cash incentive awards for Western's Federal workforce. Also includes Western's share of employee retirement, health and life insurance, accident compensation, Federal Insurance Contribution Act taxes, and Federal Retirement Thrift Savings Plan contributions. Benefits also include relocation expenses related to permanent changes of station, and payments for former employees such as severance pay and voluntary separation incentives.

Travel: Funding for the transportation of Government employees, their per diem allowances and incidental expenses incurred in the day-to-day performance of their responsibilities.

PROGRAM DIRECTION (Cont'd)

Support Services: Funding for services which include, but are not limited to, automated data processing and general administrative support

Other Related Expenses: Funding for rental space, telecommunications, utilities and miscellaneous charges, printing and reproduction, training tuition fees, maintenance and repair of office equipment, supplies, materials, non-capitalized equipment, and the assessment of Department of Energy working capital fund expenses.

II Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salary and Benefits	$ 70,052	$ 0	$ 78,355	$ 78,355	$73,079
Travel	6,749	0	7,504	7,504	7,341
Support Services	14,814	0	14,223	14,223	13,564
Other Related Expenses	12,319	0	17,580	17,580	15,044
Total Actual Program (Obligations)	$103,934	$0	$ 117,662	$117,662	$109,028
Unobligated Balances, Net	+1,058		-9,058	-9,058	-4,700
Total Appropriation (Budget Authority)	$104,992	$0	$108,604	$108,604	$104,328
Planned Use of Prior Year Balances	+9,223		+10,953	+10,953	+4,700
Total Planned Program	$114,215	$0	$119,557	$119,557	$109,028
Full Time Equivalents					
Authorized	1258		1252	1252	1190
Usage	1214		1214	1214	1190
Average Per FTE					
Appropriations/Authorized	$ 83,459		$86,744	$ 86,744	$ 87,671
Obligations/Usage	$ 85,613		$96,921	$ 96,921	$ 91,620

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PROGRAM DIRECTION (Cont'd)

III Performance Summary:

FY 1995 Measurable Performance Activities:

- Reduced Federal staffing by 44 fulltime equivalent (FTE) positions from the FY 1995 authorized level of 1,258.
- Initiated a transformation process to reorganize, restructure and reengineer Western and its processes to position the agency to meet the competitive challenges of today's electric utility industry. Implementation is expected to be completed by the end of FY 1998.
- Primarily as a result of reduced FTE usage, carried $13,758,000 of unobligated balances into FY 1996, including an internal reprogramming of $961,000. These funds will be used to cover the costs associated with Western's Transformation effort in FYs 1996 and 1997, such as voluntary separation incentives (buyouts), permanent changes of station, and retraining costs.
- Maintained and operated Western's high-voltage transmission system comprised of over 16,750 miles of line, 257 substations, and associated power system, control, communication, and general plant facilities.
- Provided continuing services such as system operations and load dispatching, power billing and collection, power marketing, general power resources planning, energy services, technology transfer, safety, security and emergency management activities within 13 separate power systems.
- Planned, collected field data, designed facilities and issued specifications for the projects identified in the Construction and Rehabilitation activity to enhance power system reliability and stability, and to ensure the delivery of power to customer delivery points.
- Inspected construction activities in progress (identified in the Construction and Rehabilitation activity) to ensure quality results and safe working methods.
- Continued an aggressive cost reduction program in partnership with our customers to limit annual cost increases at or below the rate of inflation.
- Continued environmental evaluation and cleanup of a portion of approximately 1,100 facility locations, including substations, communication and meter sites. Cleanup activities are expected to extend until 2005. Approximately 80 percent of the facilities have been evaluated. Evaluations at locations of known possible contamination, or of high risk were completed as a priority. Facilities remaining to be evaluated are those of low risk due to size, location, or minimal contamination potential.
- Worked collaboratively with neighboring utilities to engage in jointly-financed construction activities. This concept allows Western to take advantage of existing facility sites and transmission line rights-of-way, achieve economy of scale by developing one large project in lieu of two or more smaller projects, improve environmental planning, enhance revenues from sales using the Federal power system, and reduce Federal appropriations.

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PROGRAM DIRECTION (Cont'd)

FY 1995 Measurable Performance Activities (Cont'd):

- Assisted firm power customers in development and implementation of integrated resource plans in compliance with the Energy Policy Act of 1992
- As directed by the Administration, implemented an electronic commerce capability enabling electronic exchange of information with private vendors
- Planned unobligated amounts of $1,700,000 will be used to finance the FY 1997 program.

FY 1996 Measurable Performance Activities:

- Maintain fulltime equivalent usage at a level of 1214 positions, stable with the FY 1995 level, and 38 positions below Western's authorized level
- Continue regular activities, including operation, maintenance, dispatching, power billing and collection, power marketing, resource planning, energy services, technology transfers, environmental evaluations, security and emergency management activities, as described in FY 1995 Measurable Performance Activities.
- Continue planning, collecting field data, designing activities for replacement of aging facilities, and power facility development activities continue.
- Continue to conduct studies with customers and neighboring utilities for joint development of future transmission capacity, such as Estes-Mary's Lake 115-kV transmission line in Colorado, and studies to determine the best alternative to alleviate the voltage drop in northwestern Arizona
- Continue aggressive cost reduction program in partnership with our customers to limit annual cost increases at or below the rate of inflation
- Initiate implementation of improvements identified during the FY 1995 transformation process.
- Unobligated amounts of $3,000,000 will be used to finance the FY 1997 program.

FY 1997 Measurable Performance Activities:

- Will reduce fulltime equivalent usage to 1190 FTE, a reduction of 24 positions from the FY 1996 level or 57 positions below Western's previously authorized FY 1997 level.
- Regular activities, including operating, maintenance, dispatching, power billing and collection, power marketing, resource planning, energy services, technology transfers, environmental evaluations, safety, security and emergency management activities, as described in FY 1995 Measurable Performance Activities, continue.

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PROGRAM DIRECTION (Cont'd)

FY 1997 Measurable Performance Activities (Cont'd):

- Preconstruction activities (including power facility development costs) for future rehabilitation and upgrades of existing transmission lines and planning with the other members of the interconnected transmission system to identify the most effective transmission system improvements. For example, joint studies will continue to determine the best alternative to alleviate the voltage drop in northwestern Arizona.
- Continue working with customers and neighboring utilities to optimize resources and enhance understanding.
- Continue aggressive cost reduction program in partnership with our customers to limit annual cost increases at or below the rate of inflation.
- Implementation of improvements identified during the FY 1995 transformation process continue.

IV Explanation of Funding Changes FY 1996 to FY 1997:

Decrease of $8,634,000 in Program Direction funding from FY 1996 to FY 1997 is attributed to Western's aggressive implementation of its transformation objectives to reorganize, restructure, and reengineer the organization and its processes. The FY 1997 funding reflects a reduction of 24 positions, completion of most voluntary separation incentives (buyouts), reduced scope of support service activities, and initial reduction of facility space requirements at Golden, Colorado.

V Explanation of Average FTE Costs:

Western's Program Direction is comprised mainly of engineers and highly-skilled craftsmen directly engaged in the operation, maintenance and rehabilitation of the high-voltage interconnected transmission system. Based on anticipated obligations and estimated FTE usage, Western's average cost per FTE in FY 1997 is $91,620, or a decrease of $5,301 per FTE. The decrease is attributed to completion of a majority of activities associated with Western's transformation process, such as voluntary separation incentives (buyouts), consolidation of space and locations, and a reduced number of permanent change of station allowances.

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WESTERN AREA POWER ADMINISTRATION

OPERATION AND MAINTENANCE

I. Mission Supporting Goals and Objectives

Western's operation and maintenance (O&M) activity helps ensure an adequate supply of reliable energy in a clean and environmentally-safe, cost-effective manner throughout its 15-state service territory. Western achieves continuity of service by maintaining its power system at or above industry standards, rapidly restoring service following any system disturbances, mitigating adverse environmental impacts, performing clean-up activities, and maximizing the revenues gained from non-firm energy sales.

Western markets power generated at 55 hydropower plants which are operated primarily by the Bureau of Reclamation, the Corps of Engineers, and the International Boundary and Water Commission. Western also markets the United States' entitlement from the Navajo coal-fired powerplant near Page, Arizona.

Costs displayed in this section include materials and supplies, capitalized and non-capitalized equipment, and technical support services used in direct support of the O&M of the interconnected power system. Beginning with this document, the personnel costs and personnel performance accomplishments associated with the O&M activity and the Construction and Rehabilitation activity are combined and reflected in the Program Direction section of Western's budget request.

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II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Regular Operation and Maintenance	$ 15,888	$ 16,798	$ 17,309	$ +511	+ 3
Replacements and Additions	14,405	27,584	16,697	-10,887	-39
Total Actual O&M Program	$ 30,293	$ 44,382	$ 34,006	$ -10,376	- 23
Unobligated Balances, Net	+12,355	-11,800	-1,500	+10,300	-
Total, Budget Authority	$ 42,648	$ 32,582	$ 32,506	$ -76	0
Planned Use of Prior Year Balances	0	0	+1,500	+1,500	-
Total Planned O&M Program	$ 42,648	$ 32,582	$ 34,006	$ +1,424	+4

OPERATION AND MAINTENANCE, (Cont'd)

III. Performance Summary:

FY 1995 Accomplishments:

- Supplies and materials, such as wood poles, instrument transformers, meters and relays, were procured to provide necessary resources to respond to routine and emergency situations in Western's high-voltage interconnected transmission system.
- Technical support services, such as waste management disposal, environmental impact analyses, and pest and weed control, were utilized.
- Microwave equipment was added at two sites; microwave towers were added or replaced at three sites; and monitoring units were installed at two sites.
- Five manlifts, an oil filter truck, a test trailer, a bobtail trailer, a pole trailer and two lowboy trailers were procured.
- The Sierra Nevada Region's power billing system was rehosted from an obsolete mainframe to the new corporate platform.
- A 20-MVA mobile reactor was purchased to provide temporary service should an installed reactor fail.
- Unobligated amounts of $13,300,000 will be used to finance the FY 1996 program, including $2,800,000 which is available for the Administration's FY 1996 supplemental budget request.

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FY 1996 Accomplishments (to date and planned):

- A supply of switches, wood poles, crossarms, bushings, batteries, and other miscellaneous materials will be maintained to enable Western to respond to routine and emergency conditions.
- Technical support services will continue to be utilized in areas such as waste management disposal, environmental impact analyses, and pest and weed control.
- Circuit breakers and/or transformers will be replaced at ten sites to maintain system reliability.
- Primary line relay sets will be replaced on twelve transmission lines in Iowa and South Dakota.
- The evaporation pond closure at the Miles City (Montana) Converter Station will be completed.
- Unobligated amounts of $1,500,000 will be used to finance the FY 1997 program.

III. Performance Summary: OPERATION AND MAINTENANCE (Cont'd)

FY 1996 Accomplishments (Cont'd):

- As part of Western's Transformation improvement process, a decision will be made whether to modify or replace the computerized financial management system.
- The staged replacement of the remote microwave alarm system will continue in North and South Dakota.
- A replacement program for transfer trip relays will begin in South Dakota.
- Two manlifts, a crane, a line truck, three trailers, two industrial tractors, and a tracked snow tractor will be replaced.
- Wide-area network equipment such as routers and security modems will be used to connect 17 field sites in the States of Iowa, Montana, North Dakota, and South Dakota, to the corporate computer for various applications.

FY 1997 Planned Accomplishments:

- Materials and supplies, including but not limited to, capacitors, guys, insulators, conductor, meters and relays, will be procured.
- Utilization of technical support services will continue.
- Beginning in FY 1997, Western is initiating a staged replacement of radios and associated equipment at substations, repeater sites, and mobile units to meet new Federal Communications Commission (FCC) and National Telecommunications and Information Administration (NTIA) regulations which require Western to move to narrow communications band spectrums by 2005.
- Circuit breakers and/or transformers will be replaced at seven sites. Foundations for circuit breakers will be replaced at two sites.
- The 40-year old Hoover Arizona-Nevada switchyard will be replaced due to safety concerns, obsolescence, and nonavailability of repair parts.
- Two mobile circuit switchers will be added. Battery banks and/or chargers will be replaced at six sites. Remote Terminal Units will be replaced at nineteen sites.
- A supervisory control and data acquisition development computer system is required for the consolidation of dispatching centers proposed as part of Western's transformation initiative.
- Two crane/manlifts, three utility trucks, a bucket truck, a line truck, a modified-boom truck, a tilt-deck trailer, and a front-end loader will be replaced or added to the system.

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III. **Performance Summary: OPERATION AND MAINTENANCE** (Cont'd)

FY 1997 Planned Accomplishments (Cont'd)

- Wide-area network hardware will be added; routers and disk array subsystems will be upgraded and/or expanded; and an integrated services digital network will be installed.

- Specialized test equipment, such as moisture testers, motion analyzers, penta meters, and SF6 gas percentage testers, will be replaced.

Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $511,000 in Regular Operation and Maintenance activities reflects increases in basic costs of supplies and materials, offset by an aggressive cost reduction program to limit annual cost increases, thereby achieving rate stability.

The decrease of $10,887,000 in Replacements and Additions is primarily attributable to completion of the modification or replacement of the financial management system and the Administration's proposed FY 1996 supplemental budget request.

WESTERN AREA POWER ADMINISTRATION

CONSTRUCTION AND REHABILITATION

I Mission Supporting Goals and Objectives

Western's construction and rehabilitation activity emphasizes replacement and upgrading of existing infrastructure to sustain reliable power delivery to our customers and to contain annual maintenance expenses. In FY 1997, Western's transmission system will have over 16,800 circuit miles of line and 258 substations. In concert with our customers, Western has reviewed the required replacements and upgrades to our facilities. Since Western's system is part of the interconnected transmission system of the West, the timing and scope of these replacements and upgrades are critical to assure that Western's facilities do not become the "weak link" in the interconnected system. Historically, Western pursued opportunities to join with neighboring utilities to jointly finance construction activities, which result in realized cost savings and increased efficiencies for all participants.

Annual replacement needs are based on condition of the facilities, availability of replacement parts, and technological advances. For example, in FY 1995, 167 of Western's 524 power transformers exceeded their service life of 40 years, and 736 miles of 7,918 miles of wood poles exceeded their service life of 50 years. Without the planned replacements, the system will deteriorate, outages to our customers will increase, and the value of our asset will decline.

This activity provides the funding for construction contracts, government-furnished equipment, and related expenses for the construction and rehabilitation of the interconnected system. Beginning with this document, the personnel costs and related expenses associated with the Construction and Rehabilitation activity and the Operation and Maintenance activity are combined and reflected in the Program Direction section of Western's budget request

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Transmission Lines and Terminal Facilities	$ 7,536	$ 4,651	$ 3,037	$ -1,614	-35
Substations	23,289	29,348	22,280	-7,068	-24
Other	3,194	6,141	4,447	-1,694	-28
Total, Actual C&R Program	$ 34,019	$ 40,140	$ 29,764	$ -10,376	-26
Unobligated Balances, Net	10,058	-18,620	-10,000	+8,620	-
Total Budget Authority	$ 44,077	$21,520	$ 19,764	$ -1,756	-8
Planned Use of Prior Year Balances	+18,115	+7,728	+10,000	+2,272	-
Total, Planned C&R Program	$ 62,192	$ 29,248	$ 29,764	$ 516	+2

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CONSTRUCTION AND REHABILITATION

III. Performance Summary:

FY 1995 Accomplishments:

- Completed the following projects in FY 1995:

  - Upgrade of the 40-mile Fort Peck-Wolf Point 230-kV Transmission Line (Montana)
  - Construction of the Carter Mountain-Thermopolis 230-kV Transmission Line (Wyoming)
  - Rebuild of the Watertown-Summit 115-kV Transmission Line (South Dakota)
  - Rebuild of the Big George-Carter Mountain 115-kV Transmission Line (Wyoming)
  - Replacement of circuit breakers and other equipment at Mead Substation 05 (Nevada)
  - Installation of Watertown Static Var for voltage control in eastern South Dakota area
  - Replacement of equipment at Sterling 08, Woodrow 02, Flatiron 02, Glendo 04 (Colorado); Mead 05 (Nevada); Shiprock (New Mexico); Pierre (South Dakota); Rugby 04 and Edgeley (North Dakota)
  - Demolition of Mesa Substation (Arizona)
  - Expansion of the Colorado River Storage Project microwave system
  - Construction of the Sacramento Operations Center (California), Philip Warehouse (South Dakota), Sioux City Maintenance Building (Iowa), and final modification of the Phoenix Maintenance Complex (Arizona)
  - Work for others included construction of the Kofa Substation (Arizona) to meet the needs of the Yuma Proving Ground
  - Planned unobligated balance of $7,728,000 will be used to offset the need for budget authority in FY 1996
  - Planned unobligated balance of $9,000,000 will be used to finance the FY 1997 program

- Continued the following projects in FY 1995:

  - Construction of the 256-mile, 500-kV Mead-Phoenix Transmission Line from central Arizona to southern Nevada to provide additional transmission capacity
  - Construction of the 202-mile, 500-kV Mead-Adelanto Project from southern Nevada to southern California to provide additional transmission capacity
  - Minor transmission line activities such as rerouting a small section of the Devils Lake Transmission Line (North Dakota) and relocating nine homeowners within the new realignment right-of-way of the Gering-Stegall Transmission Line (Nebraska)
  - Replacement of 50-year-old equipment at Tracy Substation 04 (California) and consolidation of the 69-kV and 230-kV into the 500-kV control room.
  - Rehabilitation of the Coolidge 07 Substation (Arizona)
  - Replacement of Western-owned series capacitor at Malin Substation (Oregon) due to age and PCB contamination
  - Replacement of four shunt reactor breakers at Mead Substation 06 (Nevada). Spare parts are non-existent
  - Upgrade of Flaming Gorge Switchyard 03 (Utah) due to Bureau of Reclamation uprates at Flaming Gorge Powerplant
  - Expansion of the Central Valley Project microwave system (California), including fiber optics
  - Replacement of the Supervisory Control and Data Acquisition Systems (SCADA) at the Phoenix Maintenance Complex (Arizona)
  - Replacement of wood poles that have failed inspection along transmission lines in the Western Division of the Pick-Sloan Missouri Basin Program

III. Performance Summary: CONSTRUCTION AND REHABILITATION (Cont'd)

- Continued the following projects in FY 1995 (Cont'd)

  - Installation of metering equipment in the Central Valley Project and telecommunications facilities for the Western Division of Pick-Sloan Missouri Basin Program
  - Replacement of power transformers, circuit breakers and fuses at Brighton 03 Substation (Colorado)
  - Installation of fire protection in eight maintenance buildings within the Western Division of the Pick-Sloan Missouri Basin Program to minimize fire hazard to employees
  - Work for others included construction of the Black Mountain-Del Bac Transmission Line (Arizona) for the Bureau of Reclamation and construction of a 2-mile 69-kV tap line and bay at Tracy Substation (California) for the Contra Costa Water District. Worked with Navajo Nation to develop a project to increase the transfer capability across the Four Corners Area. Preliminary business projections, engineering analyses, and studies for the draft Environmental Impact Statement were completed.

- Awarded construction contracts for the following projects in FY 1995:

  - Replacement of the 50-year-old Basic Substation (Nevada) with the new Henderson Substation
  - Replacement of overloaded transformers at Sioux City Substation (Iowa)
  - Replacement of breakers, control building, cables, and control boards at Williston 06 Substation (North Dakota)
  - Installation of capacitor banks, circuit switcher, and other equipment at North Cody 04 and Lovell 08 Substations (Wyoming) to prevent low voltages in the area. (Formerly referred to as the Big Horn Basin Project.)
  - Replacement of the jointly-used microwave system in the Parker-Davis Project (Arizona) to support data speeds higher than 6900 bits per second required for Hoover Dam control of Davis and Parker Dams. The Bureau of Reclamation will provide partial funding.
  - Additional vehicle and equipment storage and shop space at the Brush (Colorado) Field Office, and Redding (California) Maintenance Centers, and a storage building and pole yard at Fargo (North Dakota).
  - Contract to replace the SCADA in the Pick-Sloan Missouri Basin Program was canceled as part of Western's transformation process. Existing equipment will be modified and/or relocated within Western to meet the needs of the dispatch offices. The funding initially requested for this SCADA purchase was included in the rescission.
  - Work for others included construction of the McConnico 01 Substation (Arizona) for non-Federal entities, construction of a 3.5- mile transmission line for the city of Shasta Lake to provide a second line to the city.

FY 1996 Accomplishments (to date and planned):

- Construction of the following projects will be completed in FY 1996:

  - Construction of the 500-kV Mead-Phoenix and Mead-Adelanto Projects
  - Reroute of the Devils Lake Transmission Line

III. Performance Summary: CONSTRUCTION AND REHABILITATION (Cont'd)

- Construction of the following projects will be completed in FY 1996 (Cont'd):

  - Upgrade of Flaming Gorge Switchyard 03
  - Replacement of the SCADA at the Phoenix Maintenance Center and demolition of the old dispatch building (Arizona)
  - Replacement of equipment at Tracy 04, Coolidge 07, Mead 06, North Cody 04 and Brighton 03 Substations
  - Construction of Henderson Substation to replace Basic Substation
  - Installation of oil containment at Blue Mesa Switchyard 03 (Colorado)
  - Construction of the Redding Maintenance Facility
  - Work for others will include construction of the McConnico Substation.
  - Planned unobligations of $1,000,000 will be used to finance the FY 1997 program.

- Construction of the following projects will be continued in FY 1996:

  - Realignment of the Gering-Stegall Transmission Line
  - Replacement of equipment at Sioux City, Williston 06, Lovell 08, and Shiprock Substations
  - Replacement of Western-owned series capacitors at Malin Substation
  - Replacement of wood poles that have failed inspection in the Western Division of the Pick-Sloan Missouri Basin Program
  - Replacement of microwave systems in the Parker-Davis Project, Central Valley Project, and Pacific Northwest-Southwest Intertie Project.
  - Construction of Brush Field Office Addition and fire protection in various buildings of the Western Division of the Pick-Sloan Missouri Basin Program.
  - Work for others include construction of the Black Mountain-Del Bac Transmission Line for the Bureau of Reclamation, and working with the Navajo Nation to develop a project that will increase the transfer capability across the Four Corners Area. The Environmental Impact Statement for this project will be completed.
  - Construction contracts, as well as some preconstruction activities, have been delayed, reduced in scope, or canceled, as a result of Western's effort to work with our power customers to prioritize replacements in order to maintain a safe and reliable system and keep impacts on our power rates to a minimum. These cost savings allowed Western to meet the Congressional program reduction of $13,691,000. These savings also have allowed Western to offer $2,700,000 for reprogramming, pending Congressional approval.

- Construction contracts will be awarded for the following projects in FY 1996:

  - Replacement of 2.5 miles of the Weld-Windsor 115-kV Transmission Line (Colorado). This is a joint venture with Public Service Company of Colorado. A double circuit line will service the needs of both entities.
  - Removal of 6 miles of the Weld-Rosedale 115-kV Transmission Line (Colorado)
  - Installation of 345-kV circuit breakers and approach spans at Four Corners Switchyard (New Mexico) to increase transfer capability. This is a joint venture with Arizona Public Service, Tri-State Generation and Transmission, and Public Service of Colorado.
  - Replacement of breakers and transformers at Huron 14 Substation (South Dakota) and modification of the substation so maintenance personnel do not have to reach over an energized bus to maintain relays.

III. Performance Summary: CONSTRUCTION AND REHABILITATION (Cont'd)

- Construction contracts will be awarded for the following projects in FY 1996 (Cont'd):

  - Replacement of 40-year-old equipment at ED2 Substation (Arizona)
  - Replacement of high voltage equipment at Parker and Davis Substations (Arizona) due to age and reliability
  - Replacement of circuit breakers, reactors, and instrument transformers at Denison 08 (Iowa) and addition of 230-kV circuit breaker for proper relaying of Sioux City-Denison 230-kV Transmission Line
  - Replacement of transformers, breakers, associated disconnect switches, and other high-voltage equipment at Sidney Substation (Nebraska) and Granby 02 Substation (Colorado)
  - Removal of Derby Hill and Loveland Substations and consolidation of facilities at Valley Substation (Colorado). This will be a joint venture with other entities in the area.
  - Replacement of disconnect switches, modification of 230-kV bus, and addition of breakers at Kayenta 03 (Arizona) Substation
  - Expansion of microwave system in South Dakota. This is the backbone of the transmission system communication system
  - Additional storage for housing vehicles, electrical equipment, and supplies at Devils Lake and Fargo (North Dakota), Gering Service Center (Nebraska), and Tracy Maintenance Center (California)
  - Construction of a warehouse and equipment storage facilities at Olinda Substation (California). This is a joint venture with the California-Oregon Transmission Project participants.
  - Work for others include construction of Topock Substation for non-Federal entities (Arizona).

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FY 1997 Planned Accomplishments:

- The following projects will be completed in FY 1997:

  - Realignment of the Gering-Stegall Transmission Line
  - Removal of 6 miles of the Weld-Rosedale 115-kV Transmission Line
  - Replacement of series capacitors at Malin Substation
  - Replacement of transformers at Sioux City Substation
  - Replacement of equipment at Williston 06, ED2, Granby 02, Sidney, Lovell 08, Kayenta 03, and Davis Substations
  - Construction of the Gering Service Center, Devils Lake Storage, Brush Field Office Addition, and Olinda Maintenance Facility
  - Work for others include Topock Substation.

- The following projects will continue in FY 1997:

  - Replacement of equipment at Denison 08, Huron 14, Parker, Shiprock, and Four Corners Substations
  - Consolidation of Derby Hill, Loveland, and Valley Substations
  - Demolition of Basic Substation
  - Expansion of microwave systems in the Parker-Davis Project, the Central Valley Project, Pacific Northwest-Southwest Intertie Project, and the Eastern Division of the Pick-Sloan Missouri Basin Program

III. Performance Summary: CONSTRUCTION AND REHABILITATION (Cont'd)

- The following projects will continue in FY 1997 (Cont'd)

  - Replacement of wood poles that failed inspection
  - Installation of fire protection in the Loveland Area maintenance facilities
  - If the Navajo Nation obtains funding from non-Federal sources, Western will work with the Nation to develop a project which will increase the transfer capability across the Four Corners Area.

- Construction contracts will be awarded in FY 1997 for the following projects:

  - Rebuild 1.9 miles of Estes-Mary's Lake 69-kV Transmission Line (Colorado). This will be a joint venture with the Platte River Power Authority to increase the reliability to the City of Estes.
  - Rebuild 7.3 miles of the 115-kV Prospect Valley and Lost Creek Taps to provide a second line to the Prospect Valley Substation (Colorado), which will increase reliability and make maintenance of the existing line easier. This is a joint project with Tri-State Generation and Transmission.
  - Replacement of transformers at Summit Substation (South Dakota) due to leakage and build-up of nitrogen gas
  - Replacement of transformer and fuses at Holyoke and Wray Substations (Colorado)
  - Replacement of five circuit breakers, nine power circuit breakers, and nine potential transformers due to age and lack of replacement parts at Rapid City Substation (South Dakota)
  - Replacement of 40-year-old equipment at ED-4 Substation (Arizona)
  - Replacement of 43-year-old transformer, disconnect switches, and other equipment at Bonesteel Substation (South Dakota)
  - Replacement of equipment at Custer 12 Substation (Montana)
  - Replacement of reactor at Grand Island (Nebraska)
  - Replacement of the Bismarck (North Dakota) Garage and Warehouse which are the old quonset-hut style that does not meet energy conservation guidelines, Huron (South Dakota) O&M Service Center, and modification or replacement of Western's Craft Training Center facility.
  - Replacement of transformer and associated work at Rudyard Substation (Montana)

Explanation of Funding Changes FY 1996 to FY 1997:

The Mead-Phoenix and Mead-Adelanto Projects are complete and in-service in FY 1996. This results in a decrease of $2,572,000 in FY 1997. The remaining decrease of $8,804,000 is primarily due to Western's effort to closely scrutinize all construction projects, in concert with our customers. Replacements are planned at a level that will not cause power rate increases, but at the same time assure a safe and reliable transmission system.

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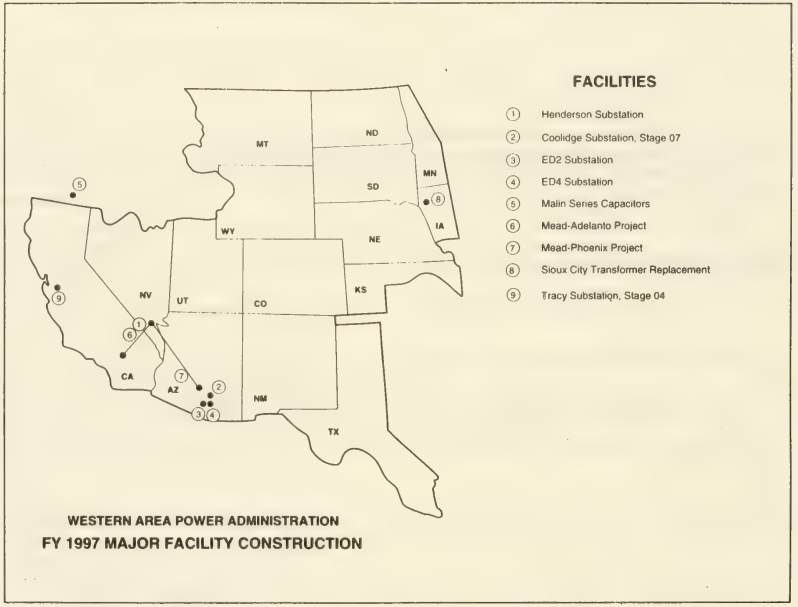
FACILITIES
1 Henderson Substation
2 Coolidge Substation, Stage 07
3 ED2 Substation
4 ED4 Substation
5 Malin Series Capacitors
6 Mead-Adelanto Project
7 Mead-Phoenix Project
8 Sioux City Transformer Replacement
9 Tracy Substation, Stage 04
MT
ND
MN
SD
WY
NE
IA
NV
UT
CO
KS
CA
AZ
NM
TX
WESTERN AREA POWER ADMINISTRATION
FY 1997 MAJOR FACILITY CONSTRUCTION

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WESTERN AREA POWER ADMINISTRATION

PURCHASE POWER AND WHEELING

I. Mission Supporting Goals and Objectives

The Purchase Power and Wheeling program obtains electrical resources and transmission capability to firm up the Federal hydropower supplies needed to meet Western's contractual obligations. Transmission wheeling services are also purchased when a third party's transmission lines are needed to deliver Federal power to Western's customers. The amount of purchases is dictated by the amount of generation available, which is contingent on water conditions in the major river systems within Western's service area. In FY 1997, reservoir levels in all of Western's service areas are expected to be near average following significant gains in FY 1995. Increased competitiveness in the California market is also impacting the purchase power program as Central Valley Project customers are not requesting the full amount of energy Western has committed to provide. Western-wide power purchases are expected to decrease from about 7.4 billion kilowatt-hours in FY 1995 to 6.4 billion kilowatt-hours in FY 1997.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Central Valley Project	$ 61,002	$ 69,498	$ 63,540	$ -5,958	-9
Pick-Sloan Missouri Basin Program	7,060	11,289	9,775	-1,514	-13
Other Projects	677	1,953	920	-1,033	-53
Total, Actual PP&W Program	$ 68,739	$ 82,740	$ 74,235	$ -8,505	-10
Unobligated Balances, Net	-81,239	+11,822	-14,600	-26,422	-
Total Budget Authority	$ -12,500	$ 94,562	$ 59,635	$ -34,927	-37
Planned Use of Prior Year Balances	+114,006	0	+14,600	+14,600	-
Total, Planned PP&W Program	$ 101,506	$ 94,562	$ 74,235	$ -20,327	-21

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II. **Funding Schedule: PURCHASE POWER AND WHEELING** (Cont'd)

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
TOTAL PROGRAM (appropriations and alternative financing)					
Central Valley Project	$ 162,129	$ 159,560	$ 150,796	$ -8,764	-5
Pick-Sloan Missouri Basin Program	40,473	43,175	42,000	-1,175	-3
Other Projects	677	3,487	3,920	+433	+12
Total Program	$ 203,279	$ 206,222	$ 196,716	$ -9,506	-5
Use of Alternative Financing	-134,540	-123,482	-122,481	+1,001	-1
Net billing, bill crediting, non-Federal reimbursable	(-106,477)	(-103,482)	(-102,481)	(+1,001)	-1
Reimbursable, Federal contract loads	(-28,030)	(-20,000)	(-20,000)	(0)	0
Non-appropriation transfers (BPA)	(-33)	(0)	(0)	(0)	0
Total, Appropriated Program	**$ 68,739**	**$82,740**	**$ 74,235**	**$ -8,505**	**-10**
Use of Prior Year Balances, Net	-81,239	+11,822	-14,600	-26,422	-223
Total, Budget Authority	**$ -12,500**	**$ 94,562**	**$ 59,635**	**$ -34,927**	**-37**
Subtotal, Current Budget Authority	(-12,500)	(93,709)	(59,635)	(-34,074)	-36
Subtotal, Permanent Budget Authority	(0)	(853)	(0)	(-853)	-100

III. Performance Summary:

FY 1995 Accomplishments:

- Central Valley Project (CVP) - Purchased energy, capacity, and wheeling services necessary for Western to meet its contractual commitments.

  Lower customer loads experienced in FY 1994 continued in FY 1995. Water conditions also improved leading to above average generation during the last nine months of the fiscal year. Energy purchases amounted to 3,830 GWh, down from the estimate of 4,788 GWh. Western proposed a $10,000,000 reduction to its FY 1995 program because of the reduced purchases. The $10,000,000 was rescinded in FY 1995.

III. Performance Summary: PURCHASE POWER AND WHEELING (Cont'd)

FY 1995 Accomplishments (Cont'd):

Non-firm purchases from northwest and instate suppliers were balanced with purchases from the Pacific Gas and Electric (PG&E) energy bank account no. 2 (EA2). The outstanding balance of the EA2 is being reduced at a rate which minimizes costs and maximizes rate stability through year 2004, the life of the PG&E contract.

In FY 1994, PG&E filed a rate schedule change with the Federal Energy Regulatory Commission (FERC). This filing established cost-based rates for Western's withdrawals of energy from EA2 during the 1985-92 period. As a result of this change, a credit of $39 million was available to finance PG&E's energy bills to Western in FY 1994 and FY 1995. Western's FY 1995 request for new budget authority was reduced accordingly.

Alternative methods of financing provided $101,127,000, or 62% of the CVP purchase power and wheeling program.

- Pick-Sloan Missouri Basin Program - Purchased energy and wheeling services to meet power delivery obligations for the Pick-Sloan Missouri Basin Program, including the Fryingpan-Arkansas Project.

Alternative financing methods provided $33,413,000, or 83% of the Pick-Sloan Missouri Basin purchase power and wheeling program.

- Other Projects - Purchased energy for the Parker-Davis and Boulder Canyon Projects. Generation at Hoover, Parker, and Davis Powerplants continued to be restricted by ongoing environmental studies at the upstream Glen Canyon Dam.

In FY 1995, alternative methods of financing were expected to provide $1,500,000 for Parker-Davis, or 25% of the total "Other Projects" program estimate of $5,980,000. However, these methods are no longer being pursued as Western has entered into resource pooling arrangements with neighboring utilities to provide for the banking and exchange of energy services at the Parker-Davis Project. The arrangement has significantly reduced the FY 1995 and outyear Parker-Davis Projects purchase power requirement.

FY 1996 Accomplishments (to date and planned):

- Central Valley Project - Continue purchasing energy, capacity, and wheeling services to meet Western's contractual commitments.

Purchases are anticipated to be 3,498 GWh. This reflects average water conditions and continued lower customer loads. The lower loads reflect the increased competitiveness in the California energy market. In response to the industry competition, Western has begun negotiations with its long-term firm power supply contractors in order to reduce the cost of these purchases, which are above current market rates. For example, PG&E capacity rates will be lowered in June 1996.

CVP purchase estimates assume that the Bureau of Reclamation will complete the Shasta Dam temperature control device (TCD) early enough in

III. **Performance Summary: PURCHASE POWER AND WHEELING** (Cont'd)

FY 1996 Accomplishments (Cont'd)

FY 1996 to eliminate power purchases normally required during bypass operations. However, indications are the TCD may not be in service until FY 1997. The amount of bypasses anticipated in FY 1996 is dependent on downstream temperature requirements for endangered chinook salmon Since FY 1988, the bypasses have ranged from 63 GWh to 435 GWh at a cost of $1.7 million to $12.6 million a year. Changes in the operation of the CVP or additional requirements for environmental concerns could reduce the amount of generation available for marketing, and increase the amount of purchases required to meet contractual commitments.

Alternative methods of financing are expected to provide $90,062,000, or 56% of the CVP purchase power and wheeling program. The reduction in alternative financing arises from a 21% decrease in Western's composite rate starting in October 1995. The rate decrease reduces the revenue base available to Western for bill crediting, net billing, and reimbursable activities.

- Pick-Sloan Missouri Basin Program - The purchase power requirement will decrease based on forecasts of near-normal reservoir levels and average inflows.

Increased appropriations were requested to pay increased wheeling expenses for transmission of energy generated from the Mt. Elbert Powerplant.

Alternative methods of financing are expected to provide $31,886,000, or 74% of the Pick-Sloan Missouri Basin purchase power and wheeling program.

- Other Projects - Continue purchasing energy for the Parker-Davis and Boulder Canyon Projects.

Western will continue resource pooling arrangements providing for banking and exchange of energy services with neighboring utilities to reduce the Parker-Davis Project power purchases by more than 60 percent.

Western has completed advance funding arrangements with some Boulder Canyon Project customers, reducing the need to request permanent budget authority for purchase power requirements at the Boulder Canyon Project. Permanent authority of $961,000 carried forward from FY 1995 was realigned from purchase power and wheeling to Boulder Canyon operation and maintenance. The permanent authority request in FY 1997 for purchase power and wheeling has been eliminated.

FY 1997 Planned Accomplishments:

- Central Valley Project - Continue purchasing energy, capacity, and wheeling services to meet Western's contractual commitments.

Purchases are anticipated to be 3,213 GWh. This reflects average water conditions, continued lower customer loads, and reduction of purchases from the long-term firm power contracts.

III. Performance Summary: PURCHASE POWER AND WHEELING (Cont'd)

FY 1997 Planned Accomplishments (Cont'd):

Non-firm purchases from northwest and instate suppliers will be balanced with purchases from PG&E energy bank account no. 2 (EA-2), to minimize costs and maximize rate stability through the year 2004, the life of the PG&E contract.

Alternative methods of financing are expected to provide $87,256,000, or about 58% of the CVP purchase power and wheeling program.

- Pick-Sloan Missouri Basin Program - The total program for the Pick-Sloan Missouri Basin Program, including Fryingpan-Arkansas Project, will continue to decrease slightly, based on forecasts of near-normal reservoir levels and average inflows.

Alternative methods of financing are expected to provide $32,225,000, or 77% of the Pick-Sloan Missouri Basin purchase power and wheeling program.

- Other Projects - Continue purchasing energy for the Parker-Davis and Boulder Canyon Projects.

Continue resource pooling arrangements with neighboring utilities to bank and exchange energy services to reduce the Parker-Davis purchase power and wheeling requirement by more than 60 percent.

Expect to complete advance funding arrangements with all remaining Boulder Canyon Project customers. The alternative financing arrangements will finance the total Boulder Canyon Project purchase power requirement, estimated at $3,000,000. This alternative method of financing will provide for 77% of the combined Parker-Davis and Boulder Canyon Project purchase power program.

Explanation of Funding Changes FY 1996 to FY 1997:

The current FY 1996 purchase power and wheeling program has declined from the enacted level by $11,822,000 due to improved water conditions throughout Western's service area and increased competitiveness in the energy markets.

The FY 1997 purchase power and wheeling appropriation requirement is expected to further decrease by $8,505,000 from the current FY 1996 program. A reduction of $5,958,000 in the Central Valley Project is expected from exercising the termination provisions of one or more of the long-term firm power contracts by the middle of 1997. Savings associated with termination will be partially offset by lower cost PG&E EA-2 and non-firm purchases. No costs have been assumed for potential litigation associated with the termination of one or more of the contracts. A reduction of $1,514,000 in the Pick-Sloan Missouri Basin project is due to slightly improved water conditions and slight expansion of alternative financing. A reduction of $1,033,000 for the Other Projects is due to anticipated advanced funding arrangements for Boulder Canyon Project power purchases and successful resource pooling arrangements at the Parker-Davis Project.

The above changes totalling a $20,327,000 reduction from the enacted FY 1996 appropriated program level, combined with unobligated FY 1995 balances of $2,778,000 and anticipated FY 1996 savings of $11,822,000, provide a net budget authority reduction of $34,927,000, or 37% in FY 1997.

WESTERN AREA POWER ADMINISTRATION

UTAH MITIGATION AND CONSERVATION

I. Mission Supporting Goals and Objectives

The Reclamation Projects Authorization and Adjustment Act of 1992, Title III--Fish, Wildlife, and Recreation Mitigation and Conservation provided for the establishment of the Utah Reclamation Mitigation and Conservation Commission (Commission). Under Title IV of this Act, the Utah Reclamation Mitigation and Conservation Account (Account) was established in the Treasury of the United States. The purpose of this account is to ensure that the level of environmental protection, mitigation, and enhancement achieved in connection with projects identified in the Act and elsewhere in the Colorado River Storage Project in the State of Utah is preserved and maintained. The State of Utah and the Administrator of Western Area Power Administration (Western) are authorized to deposit funds into the account. Such expenditures are to be considered nonreimbursable and nonreturnable.

II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Utah Mitigation and Conservation	$ 5,135	$ 5,283	$ 5,432	$ +149	+ 3
Total, Utah Mitigation and Conservation	$ 5,135	$ 5,283	$ 5,432	$ +149	+ 3

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III. Performance Summary:

FY 1995 Accomplishments:

- Deposited $5,135,000 to the Utah Reclamation Mitigation and Conservation Account.

FY 1996 Accomplishments (to date and planned):

- Deposited $5,283,000 to the Utah Reclamation Mitigation and Conservation Account.

III. Performance Summary: UTAH MITIGATION AND CONSERVATION (Cont'd)

FY 1997 Planned Accomplishments:

- A deposit of $5,432,000 will be made to the Utah Reclamation Mitigation and Conservation Account.

Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $149,000 represents a proportional increase in the deposit directed by the Reclamation Projects Authorization and Adjustment Act of 1992. Deposits are to increase annually based on the percentage of increase during the previous calendar year in the Consumer Price Index for urban consumers, published by the Department of Labor.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WESTERN AREA POWER ADMINISTRATION
(dollars in thousands)

FALCON AND AMISTAD MAINTENANCE FUND

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Falcon and Amistad Maintenance Operating Expenses	$ 0	$ 1,000	$ 0	$ 1,000	$ 970
Total Program	$ 0	$ 1,000	$ 0	$ 1,000	$ 970

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Authorizations:
P. L. 103-236, "Foreign Relations Authorization Act, Fiscal Years 1994 and 1995."

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WESTERN AREA POWER ADMINISTRATION
(obligation dollars in thousands)

OBJECT CLASS SUMMARY

FALCON AND AMISTAD MAINTENANCE FUND

	Direct Funding:	FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non -Comp	FY 1997 Request
25.3	Goods and services from Government accounts	0	0	$ 1,000	$ 1,000	$ 970
99.0	Total Obligations	0	0	$ 1,000	$ 1,000	$ 970

1999

WESTERN AREA POWER ADMINISTRATION

FALCON AND AMISTAD MAINTENANCE FUND

I. Mission Supporting Goals and Objectives

The Falcon and Amistad Operating and Maintenance Fund (Maintenance Fund) was established in the Treasury of the United States in FY 1995 as directed by the Foreign Relations Authorization Act, Fiscal Years 1994 and 1995. The Maintenance Fund is administered by the Administrator of the Western Area Power Administration (Western) for use by the Commissioner of the United States Section of the International Boundary and Water Commission (IBWC) to defray operation, maintenance (O&M) and emergency costs for the hydroelectric facilities at the Falcon and Amistad Dams.

All revenues collected in connection with the disposition of electric power generated at the Falcon and Amistad Dams, except monies received from the Government of Mexico, are credited to the Maintenance Fund and remain available until expended for defraying O&M and emergency costs for the hydroelectric facilities at the dams. Revenues, which are collected in excess of expenses, are used to repay, with interest, the cost of replacements and original investments. Prior to FY 1996, the funds required for the O&M activities of the Falcon and Amistad Dams were included in appropriation requests of the Department of State.

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II. Funding Schedule:

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Falcon and Amistad Maintenance Fund	$ 0	$ 1,000	$ 970	$ -30	-3
Total, Falcon and Amistad Maintenance Fund	$ 0	$ 1,000	$ 970	$ -30	-3

III. Performance Summary:

FY 1995 Accomplishments:

- No activity.

III. Performance Summary: FALCON AND AMISTAD MAINTENANCE FUND (Cont'd)

FY 1996 Accomplishments (to date and planned):

- Twenty-four hour operation and maintenance of two powerplants with a combined generating capacity of 97.5 megawatts to ensure response to ever-changing water conditions, customer demand, and continual coordination with operating personnel of the Government of Mexico will be accomplished Work is performed by Federal employees who will continue to be allocated to IBWC by the Department of State.

- Power generated at the Falcon and Amistad Dams will continue to be marketed by Western. Power billing, collection, and repayment studies will be completed.

- An emergency reserve of approximately $200,000 provides funds for emergency situations. If no emergency occurs in FY 1996, the funds will carry forward and continue to provide an emergency reserve in subsequent years.

FY 1997 Planned Accomplishments:

- Day-to-day operation and maintenance of the hydroelectric facilities of the U.S. Section of the International Boundary and Water Commission (IBWC), located at Falcon and Amistad Dams (Texas), continues.

- Power will be marketed, repayment studies completed, and revenue collected.

Explanation of Funding Changes FY 1996 to FY 1997:

The decrease of $30,000 reflects a correction to the O&M base calculation used by IBWC to separate hydroelectric costs from irrigation costs, offset by the elimination of request for emergency reserve funds.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WESTERN AREA POWER ADMINISTRATION
(dollars in thousands)

COLORADO RIVER BASINS POWER MARKETING FUND

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Colorado River Basins Power Marketing Fund					
Program Direction	$ 26,241	$ 0	$27,110	$ 27,110	$ 28,662
Equipment, Contracts and Related Expenses	79,716	$129,414	-27,110	102,304	91,769
Total Obligations	$105,957	$129,414	$ 0	$129,414	$120,431
Use of Prior Year Balances	-7,891	0	0	0	0
Difference between Planned and Actual Offsetting Collections	+29,250	0	0	0	0
Total Program, Operating Expenses	$ 127,316	$ 129,414	0	$ 129,414	$ 120,431
Difference between Planned and Actual Offsetting Collections	-29,250	0	0	0	0
Use of Prior Year Balances	+7,891	0	0	0	0
Total Obligations	$105,957	$ 129,414	0	$129,414	$120,431
Offsetting Collections Realized	-98,066	-129,414	0	-129,414	-130,431
Use of Prior Year Balances	-7,891	0	0	0	0
Budget Authority	$ 0	$ 0	0	$ 0	$-10,000

Authorizations:
P.L. 75-529, "The Fort Peck Project Act of 1938"
P.L. 84-484, "The Colorado River Storage Project Act of 1956"
P.L. 90-537, "The Colorado River Basin Project Act of 1968"
P.L. 95-91, "Department of Energy Organization Act" (1977)

WESTERN AREA POWER ADMINISTRATION
COLORADO RIVER BASINS POWER MARKETING FUND
OBJECT CLASS SUMMARY
(Dollars in Thousands)

EQUIPMENT, CONTRCTS AND RELATED EXPENSES

Direct Obligations:		FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997 Request
11.1	Full-time permanent	$ 0	$9,910	$ 0	$10,365	$0
11.3	Other than full-time permanent	0	171	0	178	0
11.5	Other personnel compensation	0	575	0	602	0
11.9	Total Personnel Compensation	$ 0	$10,656	$ 0	$11,145	$0
12.1	Civilian personnel benefits	0	2,243	0	3,100	0
13.0	Benefits for former personnel	0	157	0	175	0
21.0	Travel and transportation of persons	0	993	0	1,048	0
22.0	Transportation of things	0	117	0	170	0
23.1	Rental payments to GSA	0	632	0	561	0
23.3	Communications, utilities, and miscellaneous charges	0	618	0	550	0
24.0	Printing and reproduction	0	11	0	20	0
25.2	Other services	31,966	42,085	49,165	59,071	$49,013
25.3	Purchases of goods & services from Gov't accounts	3,142	3,142	3,373	3,373	2,730
26.0	Supplies and materials	1,432	1,872	1,928	2,165	2,005
31.0	Equipment	1,372	1,447	4,598	4,796	5,127
32.0	Lands and structures	1,800	1,800	3,236	3,236	2,890
42.0	Insurance claims and indemnities	4	4	4	4	4
43.0	Interest	40,000	40,000	40,000	40,000	30,000
99.0	Subtotal, Direct Obligations Equipment, Contracts and Related Expenses	$79,716	$105,957	$102,304	$129,414	$91,769
99.0	Subtotal, Direct Obligations Program Direction	26,241	0	27,110	0	28,662
99.9	Total, Direct Obligations	$105,957	$105,957	$129,414	$129,414	$120,431
	Use of Prior Year Balances	-7,891	-7,891	0	0	0
	Offsetting Collections Realized	-98,066	-98,066	$129,414	$129,414	$130,431
	Budget Authority	$ 0	$ 0	$ 0	$ 0	$-10,000

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WESTERN AREA POWER ADMINISTRATION
COLORADO RIVER BASINS POWER MARKETING FUND
OBJECT CLASS SUMMARY
(Dollars in Thousands)

PROGRAM DIRECTION

Direct Obligations:		FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997 Request
11.1	Full-time permanent	$ 9,910	$0	$10,365	$0	$10,549
11.3	Other than full-time permanent	171	0	178	0	181
11.5	Other personnel compensation	575	0	602	0	613
11.9	Total Personnel Compensation	$10,656	$0	$11,145	0	$11,343
12.1	Civilian personnel benefits	2,243	0	3,100	0	2,923
13.0	Benefits for former personnel	157	0	175	0	416
21.0	Travel and transportation of persons	993	0	1,048	0	998
22.0	Transportation of things	117	0	170	0	80
23.1	Rental payments to GSA	632	0	561	0	577
23.3	Communications, utilities, and miscellaneous charges	618	0	550	0	526
24.0	Printing and reproduction	11	0	20	0	20
25.2	Other services	10,119	0	9,906	0	11,350
26.0	Supplies and materials	440	0	237	0	226
31.0	Equipment	75	0	198	0	203
99.9	Total, Direct Obligations Program Direction	$26,241	$0	$27,110	$0	$28,662

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PROGRAM DIRECTION

Mission Supporting Goals and Objectives

The Colorado River Basins Program is comprised of three power systems. These three systems are the Colorado River Storage Project, including the Dolores and Seedskadee Projects; the Fort Peck Project in Montana; and the Colorado River Basin Project in Arizona, including the Central Arizona Project and the United States' entitlement from the Navajo coal-fired powerplant near Page, Arizona. This program is funded in Western's business-type revolving fund (Federal Enterprise Fund), the Colorado River Basins Power Marketing Fund.

Revenues from the sale of electric energy and capacity replenish the fund and are available for expenditure for operation, maintenance, power billing and collection, program direction, purchase power and wheeling, interest, emergencies, and other power marketing expenses. Power sales and other revenues, which are collected in excess of expenses, are used for repayment of investments to the U.S. Treasury. This request is for spending authority only, and represents Western's estimate of obligations to finance these business-type operations.

The Program Direction activity provides compensation and all related expenses for the workforce that operates and maintains Western's high voltage interconnected transmission system and associated facilities. These employees include, but are not limited to, electrical and electronic engineers, high voltage linemen and electricians, power dispatchers, public utility specialists, environmental and safety specialists, and administrative staff.

Western operates and maintains the transmission system to ensure an adequate supply of reliable energy in a clean and environmentally-safe, cost-effective manner throughout the Projects funded in this Account. Western achieves continuity of service by maintaining its power system at or above industry standards, rapidly restoring service following any system disturbances, mitigating adverse environmental impacts, performing clean-up activities, and maximizing the revenues gained from non-firm energy sales. In concert with our customers, Western reviews required replacements to its existing infrastructure to sustain reliable power delivery to our customers and to contain annual maintenance expenses.

Program Direction has been grouped into four categories:

Salaries and Benefits: Funding for wages, including geographic differentials, pay raises (including legislated, negotiated, and administratively-determined), overtime, holiday and premium pay, and cash incentive awards for the Federal workforce funded in this Account. This category also includes Western's share of employee retirement, health and life insurance, accident compensation, Federal Insurance Contribution Act taxes, and Federal Retirement Thrift Savings Plan contributions. Benefits also include relocation expenses related to permanent changes of station, and payments for former employees such as severance pay and voluntary separation incentives.

Travel: Funding for the transportation of Government employees, their per diem allowances and incidental expenses incurred in the day-to-day performance of their responsibilities.

Support Services: Funding for services which include, but are not limited to, automated data processing and general administrative support.

Other Related Expenses: Funding for rental space, telecommunications, utilities and miscellaneous charges, printing and reproduction, training tuition fees, maintenance and repair of office equipment, supplies, materials, non-capitalized equipment, and the assessment of Department of Energy working capital fund expenses, and a distribution of Western's general management costs.

II Funding Schedule:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salaries and Benefits	$ 13,236	0	$ 14,420	$ 14,420	$ 14,682
Travel	993	0	1,048	1,048	998
Support Services	10,119	0	9,906	9,906	10,350
Other Related Expenses	1,893	0	1,736	1,736	2,632
Total, Program Direction	$ 26,241	0	$ 27,110	$ 27,110	$ 28,662
Full Time Equivalents					
Authorized	209		208	208	197
Usage	203		203	203	197
Average Per FTE					
Program Direction/Authorized	$125,555		$130,337	$130,337	$145,492
Program Direction/Usage	$129,266		$133,547	$133,547	$145,492

III Performance Summary:

FY 1995 Accomplishments:

- Maintained and operated approximately 4,000 miles of high-voltage transmission lines and associated substations, switchyards, communication, control, and general plant facilities associated with this program.
- Provided continuing services, such as power marketing, dispatching, power billing, revenue collection, and energy services activities.
- Obtained electrical resources and transmission capability to firm up the Federal hydropower supplies needed to meet Western's contractual obligations. Transmission wheeling services were also purchased when a third party's transmission lines were needed to deliver Federal power to Western's customers.

III. Performance Summary: COLORADO RIVER BASINS FUND (Cont'd)

FY 1996 Accomplishments (to date and planned):

- Continue regular activities, including operation, maintenance, dispatching, power billing and collection, power marketing, resource planning, energy services, technology transfers, environmental evaluations, safety, security and emergency management activities, as described in FY 1995 Accomplishments.

- Continued purchasing electrical resources and transmission capability to firm up the Federal hydropower supplies needed to meet Western's contractual obligations. Transmission wheeling services will also be purchased when needed

FY 1997 Planned Accomplishments:

- Regular activities, including operation, maintenance, dispatching, power billing and collection, power marketing, resource planning, energy services, technology transfers, environmental evaluations, safety, security and emergency management activities, as described in FY 1995 Accomplishments, continue.

- Electrical resources and transmission capability will be purchased to firm up the Federal hydropower supplies needed to meet Western's contractual obligations. Transmission wheeling services will also be purchased when a third party's transmission lines are needed to deliver Federal power to Western's customers.

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Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $1,552,000 in the Program Direction activity is attributed to increases in the numbers of permanent change of station allowances associated with Western's Transformation activities and voluntary separation incentives (buyouts).

Explanation of Average FTE Costs:

Program Direction is comprised mainly of engineers and highly-skilled craftsmen directly engaged in the operation, maintenance of the high-voltage, interconnected transmission system. The Colorado River Basins Fund receives a distribution of Western's general management costs, but the FTE remain associated with the Construction, Rehabilitation, Operation and Maintenance Account (CROM). The distribution of general management costs and a higher ratio of contract employees to Federal FTE result in a higher per FTE cost in this Fund than in Western's CROM. FY 1997 average cost per FTE is $145,492, or an increase of $11,945 per FTE above the FY 1996 level. The increase is primarily attributed to increased numbers of permanent change of station allowances and voluntary separation incentives (buyouts).

EQUIPMENT, CONTRACTS AND RELATED EXPENSES

I. Mission Supporting Goals and Objectives

The Colorado River Basins Program is comprised of power marketing, operation, and maintenance of transmission facilities of three power systems. These three systems are the Colorado River Storage Project, including the Dolores and Seedskadee Projects; the Fort Peck Project in Montana; and the Colorado River Basin Project in Arizona, including the Central Arizona Project and the United States' entitlement from the Navajo coal-fired powerplant near Page, Arizona. These activities are funded in Western's business-type revolving fund (Federal Enterprise Fund), the Colorado River Basins Power Marketing Fund.

Revenues from the sale of electric energy and capacity replenish the fund and are available for expenditure for operation, maintenance, power billing and collection, program direction, purchase power and wheeling, interest, emergencies, and other power marketing expenses.

Costs displayed in this section include materials and supplies, capitalized and non-capitalized equipment, technical support services used in direct support of the operation and maintenance of the interconnected power system, electrical resources, transmission capability, transmission wheeling, and interest payments to the U.S. Treasury. Beginning with this document, the personnel costs and personnel performance accomplishments are reflected in the Program Direction section of the Colorado River Basins Power Marketing Fund request.

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II. Funding Schedule:

Program Activity	FY 1995	FY 1996	FY 1997	$ Change	% Change
Equipment, Contracts and Related Expenses	$ 79,716	$102,304	$ 91,769	$-10,535	-10

III Performance Summary:

FY 1995 Accomplishments:

- Obtained electrical resources and transmission capability to firm up the Federal hydropower supplies needed to meet Western's contractual obligations. Transmission wheeling services were also purchased when a third party's transmission lines were needed to deliver Federal power to Western's customers.

III. Performance Summary: COLORADO RIVER BASINS FUND (Cont'd)

FY 1995 Accomplishments (Cont'd):

- Supplies and materials, such as wood poles, instrument transformers, meters and relays, were procured to provide necessary resources to respond to routine and emergency situations in Western's high-voltage, interconnected transmission system.
- Technical support services, such as waste management disposal, environmental impact analyses, and pest and weed control, were utilized.
- A transformer was replaced at Richland (Montana) Substation.
- Digital radio systems were installed at Malta and Fox Creek Substations (both in Montana).
- The foundation for the Dawson County (Montana) storage building and garage were replaced.
- A manlift truck and tilt deck trailer were replaced within the Colorado River Storage Project.
- A premanufactured building was purchased as a replacement for the Craig (Colorado) Substation building.
- Specialized test equipment, such as motion analyzers and multi-amp pulsar test sets, was procured.

FY 1996 Accomplishments (to date and planned):

- Continued purchasing electrical resources and transmission capability to firm up the Federal hydropower supplies needed to meet Western's contractual obligations. Transmission wheeling services will also be purchased when needed.
- A supply of switches, wood poles, crossarms, bushings, batteries and other miscellaneous materials will be maintained to enable Western to respond to routine and emergency conditions.
- Technical support services will continue to be utilized in areas such as waste management disposal, environmental impact analyses, and pest and weed control.
- A dump truck, gas cart, oil trailer, yard tractor and crane will be replaced.
- Improvements to access roads to Methodist Mountain and Fremont Mountain (both in Colorado) microwave sites will be made.
- Transformers will be replaced at three sites and circuit breakers will be replaced at two sites.

III. **Performance Summary: COLORADO RIVER BASINS FUND** (Cont'd)

FY 1997 Planned Accomplishments:

- Electrical resources and transmission capability will be purchased to firm up the Federal hydropower supplies needed to meet Western's contractual obligations. Transmission wheeling services will also be purchased when a third party's transmission lines are needed to deliver Federal power to Western's customers.
- Materials and supplies, including but not limited to, capacitors, guys, insulators, conductor, meters and relays, will be procured.
- Utilization of technical support services will continue.
- Transformers will be replaced at two sites; circuit breakers will be replaced at one site; and remote terminal units will be replaced at two locations.
- Beginning in FY 1997, Western is initiating a staged replacement of radios and associated equipment at substations, repeater sites, and mobile units to meet new Federal Communications Commission (FCC) and National Telecommunications and Information Administration (NTIA) regulations which require Western to move to narrow communications band spectrums by 2005.

Explanation of Funding Changes FY 1996 to FY 1997:

The decrease of $10,535,000 in Equipment, Contracts and Related Expenses is related primarily to lower interest estimates. The interest payment is lower in FY 1997 than FY 1996 because the FY 1996 payment included additional amounts to pay off historical underpayment.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WESTERN AREA POWER ADMINISTRATION

SYSTEM STATISTICS 1/

	FY 1995	FY 1996	FY 1997
Generating Plants (No.)	56	56	56
Generating Capacity:			
Installed Capability (kW)	10,581,000	10,581,000	10,581,000
Substations:			
Number	257	258 2/	258
Capacity (kVA)	21,456,788	26,369,098 3/	26,369,098
Transmission lines: (circuit miles)			
500 kV	448.27	448.27	448.27
345 kV	1,628.34	1,628.34	1,628.34
230 kV	6,880.13	6,880.13	6,880.13
161 kV	840.66	840.66	840.66
138 kV	329.59	329.59	329.59
115 kV	5,673.25	5,770.75 4/	5,770.75
69 kV and below	959.36	959.36	959.36
Total circuit miles	16,759.60	16,857.10	16,857.10

1/ Statistics reflect January 1996 reverification of Western facilities completed by each Regional office.
2/ New Substation - Mead (Nevada).
3/ Increase in kVA capacity in FY 1996 due primarily to new substation at Mead (Nevada) and additions in Basic (Nevada), Tracy (California), and Sioux City (Iowa) substations.
4/ Increase in FY 1996 reflects net of addition of City of Shasta Lake (California) second interconnection and Greeley (Colorado) Area line removal.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WESTERN AREA POWER ADMINISTRATION
ESTIMATE OF REVENUES FOR FY 1995 THROUGH FY 2001 1/

(dollars in thousands)

PROJECT	ACTUAL FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Boulder Canyon Project 2/	$53,030	$ 51,769	$ 65,233	$ 64,188	$ 67,215	$ 67,116	$ 65,890
Central Valley Project 3/	221,940	193,618	201,658	214,678	214,901	214,761	213,949
Colorado River Basin Project (Navajo) 4/	88,835	86,400	86,400	86,400	86,400	86,400	86,400
Falcon-Amistad Project	3,331	3,331	3,331	3,331	3,331	3,331	3,331
Loveland Area Projects 5/	58,709	59,493	59,635	59,781	59,926	57,674	57,674
Pacific Northwest-Southwest Intertie 6/	5,532	20,697	20,697	20,697	20,697	20,697	20,697
Parker-Davis Project 7/	31,481	35,315	35,931	35,931	35,931	35,931	35,931
Pick-Sloan Missouri Basin Program-Eastern Division 8/	201,171	207,989	208,003	207,903	207,888	210,152	205,663
Provo River Project	213	313	336	358	379	379	379
Washoe Project	153	723	723	723	723	723	723
Colorado River Storage Project 9/	122,047	137,300	138,484	141,647	140,690	140,749	139,916
Collbran Project	1,918	1,806	1,831	1,855	1,855	1,855	1,855
Rio Grande	2,930	3,012	2,735	2,458	2,180	2,180	2,180
Seedskadee Project	1,425	1,218	1,218	1,218	1,218	1,218	1,218
Dolores Project 10/	1,841	1,841	1,841	1,841	1,841	1,841	1,841
Other 11/	1,965						
TOTAL	$796,521	$804,825	$828,056	$843,009	$845,175	$845,007	$837,647

FOOTNOTES ON NEXT PAGE

1/ All project amounts are based on August 1995 Power Repayment Studies (PRS) or Rate Studies, except the following projects which are based on December 1994 PRSs; Falcon-Amistad, Loveland Area, Pick-Sloan Missouri Basin, Washoe, Colorado River Storage and Seedskadee. Colorado River Basin Project revenues are based on estimated projections; no PRS is prepared.

2/ FY 1996 is the start of interest and principal payments for the Hoover Dam visitor's center; however, revenues do not reflect the increase until FY 1997, as the first year is offset by a $13 million carryover balance from FY 1995. Revenues include water sales and visitor fees. Fluctuations in other years are due to changes in uprater credit payments.

3/ Power revenues have decreased since FY 1996 Congressional Budget because sales have gone down. This has occurred because Western customers have access through the California-Oregon Transmission Project and other means to suppliers other than Western. As a result, the purchases of power from Western by our customers has decreased, and there has been a corresponding decrease in purchase power costs, which has reduced our rates. Revenues decrease from FY 1995 to FY 1996 due to decrease in composite firm power rate and assumed return to average water following an above average water year in FY 1995. Revenues increase in FY 1997 and FY 1998 due to rate increases.

4/ Western has contractually agreed for the Salt River Project (SRP) to act as the scheduling entity and operating agent for the Central Arizona Project's (CAP) portion of the Navajo generating stations output (547 MW). In return, as Western retains repayment responsibility, SRP agreed to pay a monthly fixed and variable cost. This revenue is determined in order to meet CAP repayment requirements.

5/ In FY 2000, the decrease is due to reduced wheeling revenues in the Western Division of Pick Sloan.

6/ The increase in FY 1996 reflects additional revenue from the Mead-Phoenix and Mead-Adelanto Projects going in-service.

7/ FY 1996 is the beginning of a new "compound amortization of debt" methodology. A 5-year average revenue requirement is established and revenues collected in excess of annual requirement are carried forward to the following year and used to cover shortfalls in future years.

8/ FY 1995 revenues are less due to downstream flooding and decreased average rate for surplus sales. The fluctuations in revenue for FY 2000 and FY 2001 are related to the projection of Corps generation, which, by FY 2001, nets in reduced energy available for surplus sales from the mainstem system. These power revenues represent only the activities for the Eastern Division of the Pick-Sloan Missouri Basin Program. The Western Division revenues are included in the Loveland Area Projects.

9/ FY 1995 actual revenues are less than estimated due to less transmission revenues. Revenues increase through FY 1998 and decrease thereafter due to fluctuations in the sale of nonfirm energy based on hydrology projections.

10/ The Dolores Project a new participating project of the Colorado River Storage Project became operational in FY 1995.

11/ "Other" is identified separately for FY 1995 to correspond with Western's financial statement. It represents centralized functions that are distributed among the various projects in the out years.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WESTERN AREA POWER ADMINISTRATION
ESTIMATE OF ENERGY SALES FOR FY 1995 THROUGH FY 2001 1/

(in gigawatthours) 2/

PROJECT	ACTUAL FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Boulder Canyon Project 3/	4,069	3,834	4,037	4,063	4,080	4,079	4,527
Central Valley Project	8,940	7,698	7,705	7,712	7,715	7,723	7,779
Colorado River Basin Project (Navajo) 4/	7	7	7	7	7	7	7
Falcon-Amistad Project	183	373	373	373	373	373	373
Loveland Area Projects 5/	2,190	2,040	2,040	2,040	2,040	2,040	2,040
Pacific Northwest-Southwest Intertie 6/	0	0	0	0	0	0	0
Parker-Davis Project	1,263	1,335	1,335	1,335	1,335	1,335	1,335
Pick-Sloan Missouri Basin Program - Eastern Division 7	10,706	10,340	10,329	10,313	10,316	10,307	10,052
Provo River Project	18	19	21	22	23	23	23
Washoe Project	10	10	10	10	10	10	10
Colorado River Storage Project	6,404	5,596	5,642	5,678	5,701	5,797	5,840
Collbran Project	51	51	52	52	52	52	52
Rio Grande Project	133	122	110	99	88	88	88
Seedskadee Project	60	60	60	60	60	60	60
Dolores Project 8/	18	18	18	18	18	18	18
Total	34,052	31,503	31,739	31,782	31,818	31,912	32,204

FOOTNOTES ON NEXT PAGE

1/ All project amounts are based on August 1995 Power Repayment Studies (PRS) or Rate Studies, except the following projects which are based on December 1994 PRSs; Falcon-Amistad, Loveland Area, Pick-Sloan Missouri Basin, Washoe, Colorado River Storage and Seedskadee. Colorado River Basin Project is based on estimated projections; no PRS is prepared.

2/ One gigawatthour (GWh) equals one million kilowatthours (kWh).

3/ Energy sales increase in FY 1996 and FY 1997 due to projected water conditions at Hoover Powerplant.

4/ Western entered a long term marketing agreement with Salt River Project on 6/1/94 whereby all surplus Navajo energy is marketed by Salt River Project.

5/ For operational and marketing purposes the Fryingpan-Arkansas and the Pick-Sloan Missouri Basin Program (Western Division) were integrated into one resource in FY 1990.

6/ Pacific Northwest-Southwest Intertie shows no energy sales, but reflects revenues from the transmission of energy (refer to the table of "Revenues for FY 1995 through FY 2001"). The Intertie Project is for transmission of energy only.

7/ These energy sales represent the activities for the Eastern Division of the Pick-Sloan Missouri Basin Program only.

8/ The Dolores Project (a new participating project of the Colorado River Storage Project), became operational in FY 1995.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
WESTERN AREA POWER ADMINISTRATION
(dollars in thousands)

ESTIMATE OF PROPRIETARY RECEIPTS

ACTIVITY	ACTUAL FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Falcon Amistad Maintenance Fund 895178	$ 3,053	$ 3,331	$ 3,331	$ 3,331	$ 3,331	$ 3,331	$ 3,331
Sale of Power and Other Utilities Not Otherwise Classified, 892249	37,742	39,188	39,188	39,188	39,188	39,188	39,188
Sale of Power - Western Area Power Administration-Reclamation Fund, 895000.27	290,619	335,280	339,485	351,758	347,923	348,246	339,132
Total Proprietary Receipts	$331,414	$377,799	$382,004	$394,277	$390,442	$390,765	$381,651

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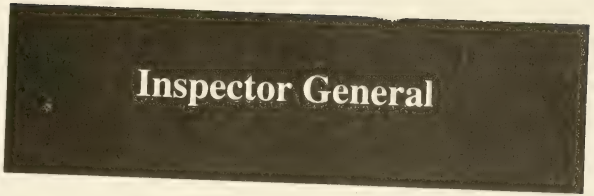

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF THE INSPECTOR GENERAL

PROPOSED APPROPRIATION LANGUAGE

For necessary expenses of the Office of the Inspector General in carrying out the provisions of the Inspector General Act of 1978, as amended, [$25,000,000] $29,605,000, to remain available until expended.

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Office of Inspector General					
Office of Inspector General	33,996	28,516	30,502	1,986	7.0%
Use of prior year balances	-5,960	-1,915	-897	1,018	53.2%
Total, Office of Inspector General	**28,036**	**26,601**	**29,605**	**3,004**	**11.3%**

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
OFFICE OF INSPECTOR GENERAL
(Tabular dollars in thousands, Narrative in whole dollars)

PROGRAM MISSION

Major statutory responsibilities of the Office of Inspector General (OIG) as stated in section 4 of the Inspector General Act of 1978, as amended, 5 U.S.C. App.3, are to detect and prevent fraud, abuse and violations of law and to promote economy, efficiency and effectiveness in the programs and operations of the Department of Energy (DOE). In addition, Section 6006 of the Federal Acquisition Streamlining Act of 1994 requires the OIG to investigate certain reprisal complaints of contractor employees.

The GOAL of the OIG is to facilitate positive change in the Department by promoting the effective, efficient, and economical operation of its programs through audits, inspections, investigations, other reviews, and by inquiries into whistleblower complaints of reprisal by contractor employees.

The OBJECTIVES related to this goal are:

1. To provide independent, objective, high caliber, and timely audits, inspections, investigations and other reviews of the effectiveness, efficiency and economy of Departmental programs and operations.
2. To effectively select projects and functions in need of review by having a continual planning process.
3. To provide timely identification of wrongdoing in Departmental programs, operations, contracts, and grants.
4. To conduct activities which alert Departmental officials to fraud indicators.
5. To provide oversight of operations and field office implementation of the whistleblower protection program.
6. To successfully coordinate and perform joint efforts with the Department of Justice and other law enforcement agencies.
7. To perform all statutorily-mandated reviews.

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MISSION: OFFICE OF INSPECTOR GENERAL (Cont'd)

PERFORMANCE MEASURES:

Performance measures related to audit, inspection, and investigative activity are qualitative as well as quantitative. Quantitative performance measures used by the OIG include:

1. Number of audits completed.
2. Number of investigations closed.
3. Number of inspection matters closed.
4. Number of contractor reprisal inquiries closed.
5. OIG recommendations accepted or implemented by management.
6. Audit/inspection savings, recoveries and funds identified for better use.
7. Legislative and regulatory compliance related to OIG recommendations.
8. Positive changes in the Department after implementation of recommendations.
9. Complaints resolved.
10. Investigation recoveries/fines and funds identified for better use.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS:

1. OIG actions in identifying attainable economies and efficiencies in Departmental operations have recently provided a positive dollar impact of approximately $3.4 million per audit employee per year.

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2. Implementation of the Government Management Reform Act of 1994 will require significant additional OIG resources. To meet these requirements the OIG has diverted existing resources from other important issues and vulnerable Department programs.

3. The OIG will have to assume additional responsibilities to address the increased vulnerabilities as Departmental downsizing and streamlining occur. Additional responsibilities may include a potentially significant increase in the number of Hotline complaints that the OIG must handle.

4. The Office of Contractor Employee Protection was transferred to the OIG in order to implement requirements of the Federal Acquisition Streamlining Act of 1994.

5. Due to several new statutory mandates and additional responsibilities having been placed upon the OIG over the past few years, the OIG's accomplishments will be less than complete over a broad range of its mandated mission, including: Requirements under the Chief Financial Officers Act of 1990 and the Government Management Reform Act of 1994 for audited financial statements; economy and efficiency reviews, internal control reviews, and programmatic reviews; responses to Hotline complaints; efforts to increase the focus of investigations to significant violations of Federal criminal and civil statutes, and to increase the number of cases accepted for prosecution; performance of management inspections and administrative allegation inspections which are highly focused, fact-finding reviews; responses to whistleblower reprisal allegations; reviews of existing and proposed legislation and regulations as required by the IG Act; and responses to Freedom of Information Act requests.

6. OIG investigative efforts have been redirected toward cases of increased complexity which result in more significant positive change for the Department. These cases include serious criminal violations, enforcement of civil fraud statutes, and significant administrative misconduct.

7. Resource constraints require higher thresholds for investigative case openings and inspection of administrative allegations, resulting in less coverage and less deterrent effect.

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OFFICE OF INSPECTOR GENERAL
PROGRAM FUNDING PROFILE

(dollars in thousands)

Program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Comparable Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Office of Inspector General	$ 33,996	$ 26,915	$ 1,601	$ 28,516	$ 30,502
Subtotal	$ 33,996 (b)	$ 26,915	$ 1,601	$ 28,516 (c)	$ 30,502
Adjustment (a)	(5,960)	(1,915)		(1,915)	(897)
TOTAL	28,036	25,000	1,601	26,601	29,605

(a) Use of prior year unobligated balances estimated in the FY 1995 and FY 1996 appropriations provided by Congress.
(b) Actual FY 1995 comparable program obligations were $29,736.
(c) Amount reflects FY 1996 Congressional appropriation and does not include an estimated use of $6,817 in prior year unobligated balances.

Public Law Authorizations:
Pub. Law 95-452, The Inspector General Act of 1978

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OFFICE OF INSPECTOR GENERAL
PROGRAM FUNDING BY SITE

(dollars in thousands)

Field Office/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation (c)	FY 1996 Comparable Adjustments	FY 1996 Comparable Appropriation (c)	FY 1997 Budget Request (d)
Washington, D.C.:					
Headquarters	$ 6,523	$ 4,801	$ 615	$ 5,416	$ 5,834
Field Svcs Activities	4,159	4,270	547	4,817	4,947
Germantown (a)	4,514	3,431	439	3,870	4,316
Chicago	723	457		457	526
Cincinnati	904	686		686	788
New Orleans	635	457		457	526
Oak Ridge	3,761	2,824		2,824	2,974
Princeton	723	457		457	526
Savannah River	1,627	1,372		1,372	1,489
Pittsburgh	1,176	915		915	1,050
Albuquerque	3,186	2,516		2,516	2,712
Denver	815	686		686	788
Dallas	180	-		-	-
Idaho Falls	816	686		686	788
Las Vegas	635	457		457	526
Livermore	1,537	1,297		1,297	1,224
Los Alamos	543	457		457	350
Portland	454	153		153	175
Richland	1,085	993		993	963
SUBTOTAL	$ 33,996	$ 26,915	$ 1,601	$ 28,516	$ 30,502
ADJUSTMENT (b)	(5,960)	(1,915)		(1,915)	(897)
TOTAL	$ 28,036	$ 25,000	$ 1,601	$ 26,601	$ 29,605

(a) Includes Washington, D.C. field sites.
(b) Use of prior year unobligated balances.
(c) Reflects appropriation and not full estimated actual requirement.
(d) FY 1997 reflects transfer of Office of Contractor Employee Protection to the OIG. FY 1997 and comparable data for FY 1995 and FY1996 include Working Capital Fund.

OFFICE OF THE INSPECTOR GENERAL

PROGRAM OBJECT CLASS SUMMARY

(dollars in thousands)

		FY 1995 Comparable	FY 1995 Non-comp.	FY 1996 Comparable	FY 1996 Non-comp.	FY 1997 Request
Personnel Compensation:						
11.1	Full-time permanent	$ 17,922	$ 17,922	$ 20,809	$ 20,809	$ 20,293
11.3	Other than full-time permanent	147	147	151	151	157
11.5	Other personnel compensation	545	545	448	448	414
11.9	Total Personnel Compensation	$ 18,614	$ 18,614	$ 21,408	$ 21,408	$ 20,864
12.1	Civilian personnel benefits	3,695	3,695	5,222	5,222	5,094
13.0	Benefits for former personnel	146	146	60	60	60
21.0	Travel and transportation of persons	1,527	1,527	1,600	1,600	1,500
22.0	Transportation of things	53	53	30	30	30
23.1	Rental payments to GSA	1,163		1,177		1,302
23.3	Communications, utilities and misc. charges	506	234	510	234	474
24.0	Printing and reproduction	90	-	91	-	101
25.1	Consulting services (non-governmental contracts)	1,495	1,495	1,750	1,750	-
25.2	Other services	2,383	2,378	1,505	1,500	1,007
26.0	Supplies and materials	64	13	85	13	70
99.9	Total Obligations	$ 29,736	$ 28,155	$ 33,418	$ 31,817	$ 30,502
	Recovery of prior year obligations	8	8	-	-	-
	Unobligated balance avail. start of year	9,406	9,406	7,714	7,714	897
	Unobligated balance avail. end of year	7,714	7,714	897	897	-
	Budget Authority	$ 28,036	$ 26,455	$ 26,601	$ 25,000	$ 29,605

FY 1997 reflects transfer of the Office of Contractor Employee Protection to the OIG. FY 1997 and comparable data for FY 1995 and FY 1996 include Working Captial Fund.

OPERATING EXPENSES

I. Mission Supporting Goals and Objectives:

This activity conducts audits, inspections, investigations, and other reviews to fulfill the statutory duties and responsibilities of the OIG. Audits are conducted to provide independent evaluation of the Department's operating and administrative programs and include an assessment of the Department's financial and management control systems and procedures. Inspections are conducted to review administrative allegations received by the OIG, review management systems for economy and efficiency, and process referrals of allegations to Department management for appropriate action. Inquiries are conducted to resolve whistleblower complaints of reprisal by contractor employees. Investigations are conducted to determine prohibited or improper activities against DOE by its contractors, vendors, grantees, and employees.

II. Funding Schedule: (Dollars in Thousands)

	FY 1995 Comparable Appropriation	FY 1996 b/ Original Appropriation	FY 1996 Comparable Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Washington, D.C.					
Headquarters					
Salary and Benefits	$ 4,612	$ 4,761	$	$ 4,761	$ 4,638
Travel	486	0		0	269
Support Services a/	33	0		0	0
Other Related Expenses c/	1,392	40	615	655	927
Total	$ 6,523	$ 4,801	$ 615	$ 5,416	$ 5,834
Full-Time Equivalents	64	63		63	59
Average	$ 102	$ 76		$ 86	$ 99
Field Services Activities					
Salary and Benefits	$ 2,955	$ 4,235	$	$ 4,235	$ 4,009
Travel	312	0		0	228
Support Services	0	0		0	0
Other Related Expenses	892	35	547	582	710
Total	$ 4,159	$ 4,270	$ 547	$ 4,817	$ 4,947
Full-Time Equivalents d/	41	57		57	51
Average	$ 101	$ 75		$ 85	$ 97

a/ Support Services costs of $1,750,000 for the total OIG for FY 1995 primarily reflect use of contract auditors and experts, and are shown for the field sites where technical monitors are located (Germantown, Oak Ridge, and Albuquerque).

b/ Virtually all of the FY 1996 funding of $26,915,000 is applied to salaries and benefits in this table, since it is estimated that these costs alone would total approximately $26,690,000 at the authorized staffing level.

c/ "Other Related Expenses" for Washington, D.C. and Germantown includes Working Capital funding, resulting in higher average FTE costs.

d/ FY 1996 and FY 1997 FTEs include Office of Contractor Employee Protection.

Germantown **					
Salary and Benefits	$ 2,811	$ 3,403	$	$ 3,403	$ 3,535
Travel	297	0		0	201
Support Services	557	0		0	0
Other Related Expenses	849	28	439	467	580
Total	$ 4,514	$ 3,431	$ 439	$ 3,870	$ 4,316
Full-Time Equivalents	39	45		45	45
Average	$ 116	76		$ 86	$ 96
Chicago					
Salary and Benefits	$ 576	$ 453		$ 453	$ 472
Travel	61	0		0	28
Support Services	0	0		0	0
Other Related Expenses	86	4		4	26
Total	$ 723	$ 457		$ 457	$ 526
Full-Time Equivalents	8	6		6	6
Average	$ 90	$ 76		$ 76	$ 88
Cincinnati					
Salary and Benefits	$ 720	$ 680		$ 680	$ 708
Travel	76	0		0	41
Support Services	0	0		0	0
Other Related Expenses	108	6		6	39
Total	$ 904	$ 686		$ 686	$ 788
Full-Time Equivalents	10	9		9	9
Average	$ 90	$ 76		$ 76	$ 88

** Includes Washington D.C. field sites.

New Orleans					
Salary and Benefits	$ 506	$ 453		$ 453	$ 472
Travel	53	0		0	28
Support Services	0	0		0	0
Other Related Expenses	76	4		4	26
Total	$ 635	$ 457		$ 457	$ 526
Full-Time Equivalents	7	6		6	6
Average	$ 91	$ 76		$ 76	$ 88
Oak Ridge					
Salary and Benefits	$ 2,449	$ 2,800		$ 2,800	$ 2,672
Travel	259	0		0	154
Support Services	686	0		0	0
Other Related Expenses	367	24		24	148
Total	$ 3,761	$ 2,824		$ 2,824	$ 2,974
Full-Time Equivalents	34	37		37	34
Average	$ 111	$ 76		$ 76	$ 87
Princeton					
Salary and Benefits	$ 576	$ 453		$ 453	$ 472
Travel	61	0		0	28
Support Services	0	0		0	0
Other Related Expenses	86	4		4	26
Total	$ 723	$ 457		$ 457	$ 526
Full-Time Equivalents	8	6		6	6
Average	$ 90	$ 76		$ 76	$ 88
Savannah River					
Salary and Benefits	$ 1,296	$ 1,361		$ 1,361	$ 1,337
Travel	137	0		0	78
Support Services	0	0		0	0
Other Related Expenses	194	11		11	74
Total	$ 1,627	$ 1,372		$ 1,372	$ 1,489
Full-Time Equivalents	18	18		18	17
Average	$ 90	$ 76		$ 76	$ 88

Pittsburgh					
Salary and Benefits	$ 937	$ 907		$ 907	943
Travel	99	0		0	54
Support Services	0	0		0	0
Other Related Expenses	140	8		8	53
Total	$ 1,176	$ 915		$ 915	$ 1,050
Full-Time Equivalents	13	12		12	12
Average	$ 90	$ 76		$ 76	$ 88
Albuquerque					
Salary and Benefits	$ 2,161	$ 2,495		$ 2,495	$ 2,437
Travel	228	0		0	141
Support Services	474	0		0	0
Other Related Expenses	323	21		21	134
Total	$ 3,186	$ 2,516		$ 2,516	$ 2,712
Full-Time Equivalents	30	33		33	31
Average	$ 106	$ 76		$ 76	$ 87
Denver					
Salary and Benefits	$ 649	$ 680		$ 680	$ 708
Travel	69	0		0	41
Support Services	0	0		0	0
Other Related Expenses	97	6		6	39
Total	$ 815	$ 686		$ 686	$ 788
Full-Time Equivalents	9	9		9	9
Average	$ 91	$ 76		$ 76	$ 88
Dallas					
Salary and Benefits	$ 143	$ 0		$ 0	$ 0
Travel	15	0		0	0
Support Services	0	0		0	0
Other Related Expenses	22	0		0	0
Total	$ 180	$ 0		$ 0	$ 0
Full-Time Equivalents	2	0		0	0
Average	$ 90	$ 0		$ 0	$ 0

Idaho Falls					
Salary and Benefits	$ 650	$ 680		$ 680	$ 708
Travel	69	0		0	41
Support Services	0	0		0	0
Other Related Expenses	97	6		6	39
Total	$ 816	$ 686		$ 686	$ 788
Full-Time Equivalents	9	9		9	9
Average	$ 91	$ 76		$ 76	$ 88
Las Vegas					
Salary and Benefits	$ 506	$ 453		$ 453	$ 472
Travel	53	0		0	28
Support Services	0	0		0	0
Other Related Expenses	76	4		4	26
Total	$ 635	$ 457		$ 457	$ 526
Full-Time Equivalents	7	6		6	6
Average	$ 91	$ 76		$ 76	$ 88
Livermore					
Salary and Benefits	$ 1,225	$ 1,286		$ 1,286	$ 1,100
Travel	129	0		0	63
Support Services	0	0		0	0
Other Related Expenses	183	11		11	61
Total	$ 1,537	$ 1,297		$ 1,297	$ 1,224
Full-Time Equivalents	17	17		17	14
Average	$ 90	$ 76		$ 76	$ 87
Los Alamos					
Salary and Benefits	$ 432	$ 453		$ 453	$ 314
Travel	46	0		0	18
Support Services	0	0		0	0
Other Related Expenses	65	4		4	18
Total	$ 543	$ 457		$ 457	$ 350
Full-Time Equivalents	6	6		6	4
Average	$ 91	$ 76		$ 76	$ 88

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Portland					
Salary and Benefits	$ 362	$ 152		$ 152	$ 157
Travel	38	0		0	9
Support Services	0	0		0	0
Other Related Expenses	54	1		1	9
Total	$ 454	$ 153		$ 153	$ 175
Full-Time Equivalents	5	2		2	2
Average	$ 91	$ 76		$ 76	$ 88
Richland					
Salary and Benefits	$ 865	$ 985		$ 985	$ 864
Travel	91	0		0	50
Support Services	0	0		0	0
Other Related Expenses	129	8		8	49
Total	$ 1,085	$ 993		$ 993	$ 963
Full-Time Equivalents	12	13		13	11
Average	$ 90	$ 76		$ 76	$ 88
Field/Field Svcs Activities Subtotal					
Salary and Benefits	$ 19,819	$ 21,929	$	$ 21,929	$ 21,380
Travel	2,093	0		0	1,231
Support Services	1,717	0		0	0
Other Related Expenses	3,844	185	986	1,171	2,057
Total	$ 27,473	$ 22,114	$ 986	$ 23,100	$ 24,668
Full-Time Equivalents	275	291		291	272
Average	$ 100	$ 76		$ 79	$ 91
Total Inspector General					
Salary and Benefits	$24, 431	$ 26,690	$	$ 26,690	$ 26,018
Travel	2,579	0		0	1,500
Support Services	1,750	0		0	0
Other Related Expenses	5,236	225	1,601	1,826	2,984
Total	$ 33,996	$ 26,915	$ 1,601	$ 28,516	$ 30,502
Full-Time Equivalents	339	354		354	331
Average	$ 100	$ 76		$ 81	$ 92

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III. Performance Summary: Office of Inspector General

FY 1995 Measurable Performance Activities:

- Issued 177 audit reports with monetary benefits in excess of $654 million during FY 1995. Included were recommendations to reduce staffing at the Waste Isolation Pilot Plant by 25 percent and at the Strategic Petroleum Reserve by 20 percent, resulting in annual savings of $27.4 million.

- Identified excessive overtime payments to exempt employees at Savannah River. Payments totalled $34.1 million in FY 1993.

- Identified $46.3 million in precious metals which were or will be excess to Departmental needs

- Identified expenditures totaling about $3.8 million for design costs which could have been avoided had Operations Office obtained clarification from the U.S. Environmental Protection Agency (EPA) regarding requirements of the Comprehensive Environmental Response, Compensation, and Liability Act. Management agreed to require the environmental restoration project managers to more closely coordinate with EPA on future projects.

- Determined that due to the Department's failure to provide sufficient implementing guidance, it could not demonstrate that Cooperative Research and Development Agreements (CRADAs) met their goals, measured progress toward those goals, determined the viability of potential CRADAs or partner in-kind contributions, or ensured that consistent management guidance was provided to all Department facilities.

- Disclosed that the Office of Energy Research generally did not clearly specify performance expectations for research at the Department's national laboratories. Specifically, work authorizations for 237 of 264 tasks examined did not contain a clear statement of the work to be performed, resource limits, milestones, or specific deliverables

- Continued implementation of the Chief Financial Officers (CFO) Act of 1990, which requires the submission of financial statements to the Director of the Office of Management and Budget (OMB) for each Departmental revolving fund and trust fund, as well as activities which performed substantial commercial functions.

  - Eleven separate entities were initially involved in preparing financial statements which were audited under the management of the OIG.

  - The Government Management Reform Act (GMRA) of 1994 dramatically expanded the provisions of the CFO Act. The OIG is now required by law to audit financial statements covering all accounts and associated activities of the Department and to submit them to OMB annually.

  - The first set of audited financial statements for the Department is due no later than March 1, 1997. Accordingly, the OIG has necessarily begun to divert a material portion of its available staff to organize, plan and train for this effort. To date, for example, 120 auditors have received significant training and are performing financial statement audits. Field work on internal controls and compliance with laws and regulations commenced in June 1995. Substantive testing began in the fourth quarter of FY 1995.

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- Closed 234 investigations and referred 78 cases for prosecution (53 cases were accepted for prosecution) during FY 1995, and achieved $4,449,469 in fines, settlements, and recoveries during FY 1995.

- Realigned investigative efforts toward cases of increased complexity with emphasis on conducting investigations focused on significant violations of Federal criminal and civil statutes.

- Increased the number of cases accepted for prosecution from the previous four year average of approximately 44 percent of all cases presented to approximately 68 percent.

- Continued to respond to Hotline complaints and enhanced the efficiency of the Hotline operation . A total of 388 Hotline complaints were received during FY 1995.

- More evenly distributed the IG investigative presence in relation to where Departmental and contractor employees are located and costs are incurred.

- Established a new investigative management structure, thereby improving the efficiency of conducting investigations through the delegation of wider authority to the regional offices.

- Issued 40 inspection reports in FY 1995. Management implemented 103 recommendations to improve operations of the Department.

- Performed 65 management inspections and 158 administrative allegation inspections in FY 1995.

- Continued to manage the referral of selected Hotline allegations to DOE management or other agencies for appropriate action; referred 381 allegations in FY 1995, and requested a response on 205 of these allegations.

- Continued to coordinate the review, as required by the Inspector General Act, of existing and proposed legislation and regulations relating to the Department's programs and operations; coordinated the review of 34 legislative, regulatory, and procedural items in FY 1995.

- Continued to prepare the OIG quarterly report to the Intelligence Oversight Board as required by Executive Order 12863, "President's Foreign Intelligence Advisory Board."

- Continued to manage the OIG evaluation of qui-tam actions filed, pursuant to the provisions of the False Claims Act. Provided input to the Department of Justice on ten qui-tams reviewed in FY 1995.

- Closed 92 Freedom of Information Act cases during FY 1995.

FY 1996 Measurable Performance Activities:

- Continue implementation of the CFO Act and GMRA audit requirements. The major effort during FY 1996 will be the substantive testing of internal controls and for compliance with laws and regulations, and the substantive testing of year-end balances summarized in adjusted trial balances and in various financial statements. The OIG will "report" on the FY 1996 opening balances.

- Update the GMRA Strategic Plan beginning in March 1996; the training plan for FY 1996 will be drafted, finalized and training provided; field work will begin on internal controls and compliance with laws and regulations; and substantive testing will begin.

- Conduct audits evaluating various financial systems and procedures in use throughout the Department.

- Continue to conduct audits that examine the Department's procurement and contract administration activities.

- Continue to conduct audits of the Department's environment, safety and health programs to include audits on the cost effectiveness and planning activities of these critical programs.

- As resources permit, ensure that Department realignment actions are economical and efficient, including responding to management-requested reviews relating to streamlining organizational structure and flow.

- Review Department construction activities to ensure their need, and, where projects are cancelled, that funds are being properly reprogrammed.

Thus far in FY1996:

- Determined that the Department is not adequately monitoring and managing contractor overtime. A review of M&O contracts in effect at the end of FY 1994, and which incurred $251million in overtime costs during FY 1994, disclosed that contract terms were vague and efforts to manage overtime were limited.

- Disclosed that the Department spent $29 million on the production of 87 accident resistant containers that may never be used. DOE unilaterally decided to produce containers that the Air Force did not want and had no expressed desire for.

- Concluded that the Department does not have adequate control over arms and military-type equipment that it maintains for ensuring the security of the nation's nuclear weapons. The audit determined that the Department has more arms than are necessary to support its mission, and the inventory and disposal records associated with the arms are not always accurate.

- Determined that the Department is spending more on construction projects than is justified. Seven on-going construction projects totaling over $40 million at one Operations Office are either not needed or are larger than needed. At another location, one planned construction project has

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been approved even though the facility is not needed. Justification for the $8.4 million project was inadequate, and required evaluation of alternatives were either not performed or not documented.

- Actively promote a more effective, efficient and economical operation of Department programs by conducting more complex investigations of alleged waste, fraud and abuse with continuing focus on significant violations of Federal criminal and civil statutes. To date, this has resulted in a significant increase in the percentage of complex criminal and civil matters presented before the United States Attorney.

- Identify, through a coordinated effort with the United States Attorney's office, possible OIG investigative thresholds for blanket Department of Justice declinations on non-prosecutable cases which will result in an increased percentage of quality cases presented and accepted for prosecution. As a result, to date, monetary thresholds have been temporarily established resulting in a 17% reduction of the caseload.

- Improve the quality, effectiveness, efficiency, and timeliness of completing investigations through the implementation of an internal review team that will conduct site inspections of the investigative and support operations. As a result, the Internal Review Team inspection has established a schedule which will result in the review of all offices by December 1996. A 20% review, to date, has resulted in an improved quality of investigative management and operations.

- Restructure response to Hotline complaints, to increase use of DOE operations oversight, and investigate only those cases that meet an established threshold for potential prosecution. Implementation of the threshold requirements and increased oversight has resulted in at least a 15% reduction in cases referred for investigation.

- Increase the number of joint agency investigative task forces by 25 percent, which will result in the added benefit of using non-OIG investigative resources to augment current staffing levels, equipment and expertise in addressing DOE cases. To date, task force participation is more than halfway to this goal with cooperation from such agencies as the FBI, EPA and Justice Department.

- Improve communications with law enforcement personnel in other agencies, Department management and other OIG customers for the purpose of facilitating future cooperative efforts, and also for the purpose of developing leads, added information and improved knowledge. To date, efforts have resulted in a formal measurement of liaison activity with improved directions on establishing working relationships with local, state and Federal agencies.

- Continue to conduct administrative allegation inspections which are highly focused, fact-finding reviews that are typically in response to an allegation of waste or mismanagement. Also continue to review management systems issues that are identified during administrative allegation reviews. During FY 1996 to date, 109 allegation inspections have been worked on.

- Continue to manage the referral of Hotline allegations to DOE management or other agencies for appropriate action, and review the corrective actions taken by management. During FY 1996 to date, 137 referrals of Hotline allegations have been made to DOE management or other agencies.

- Continue to manage the OIG review, as required by the Inspector General Act, of existing and proposed legislation and regulations relating to the Department's programs and operations. During FY 1996 to date, managed the review of 10 existing or proposed laws or regulations.

- Continue the OIG quarterly reporting to the Intelligence Oversight Board, and conduct one oversight review of the Department's intelligence activities in accordance with Executive Order 12333, "United States Intelligence Activities," as required by Executive Order 12863, "President's Foreign Intelligence Advisory Board."

- Continue to manage the OIG evaluation of qui-tam actions filed, pursuant to the provisions of the False Claims Act, to provide input to the Department of Justice for determining appropriate action. Seven qui-tams still require OIG action.

- Successfully integrate contractor employee protection functions into the OIG consistent with the mandates of the Federal Acquisition Streamlining Act of 1994, as effected through transfer of the DOE Office of Contractor Employee Protection to the OIG. Integration of the Office of Contractor Employee Protection is an ongoing activity.

- Manage expected increase in whistleblower reprisal allegation cases resulting from continued contractor downsizing activities.

- Promote increased utilization of alternative dispute resolution techniques, including mediation, in whistleblower complaints and other cases as a more effective and efficient way to resolve disputes that do not otherwise require OIG intervention.

- Continue to process the increasing volume of Freedom of Information Act requests (to date in FY 1996 new cases have been opened at almost double the rate of FY 1995).

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FY 1997 Measurable Performance Activities:

Full completion of the following activities could be impacted by requirements to do additional work with fewer resources.

- Comply with the Chief Financial Officers Act of 1990 and the Government Management Reform Act of 1994 requirements for an audited Departmental financial statement. Compliance with these Acts will be a challenge with reduced resources.

- Should additional mandates be enacted, it is unlikely that resources would be available to meet the mandates.

- Perform audits of the Department's efforts at workforce restructuring and economic development.

- Continue audit efforts in the area of the Department's Environmental Management programs.

- Perform audits of the adequacy of the Department's efforts to implement performance-based contracting methods.

- Integrate the financial statement audit results into performance audits of the Department's primary functions and facilities.
- Continue reviewing areas that significantly impact the Department's streamlining objectives.
- Review areas highlighted as a result of financial statement audits.
- Review Department property maintenance practices to ensure that assets are being protected.
- Review the Department's mixed waste construction projects to ensure that funds are not expended where the technology is unproven.
- Ensure that the Department's leasing of facilities is justified and economical.
- Actively promote a more effective, efficient and economical operation of Department programs by conducting more complex investigations of alleged waste, fraud and abuse with continuing focus on significant violations of Federal criminal and civil statutes.
- Increase, through a coordinated effort with the United States Attorney's office, OIG investigative thresholds for blanket Department of Justice declinations on non-prosecutable cases which will result in an increased percentage of quality cases presented and accepted for prosecution.
- Restructure response to Hotline complaints, to increase use of DOE operations oversight, and investigate only those cases that meet the increased established threshold for potential prosecution.
- Continue to increase and explore opportunities for joint agency investigative task force operations, which will result in maximizing the personnel and fiscal resources, equipment, knowledge and expertise dedicated to each case, and which will also accelerate the timeliness of completing investigations.
- Increase direct communications with law enforcement personnel in other agencies, Department management and other OIG customers for the purpose of facilitating future cooperative efforts, and also for the purpose of developing additional leads, information and knowledge.
- Continue to improve the quality, effectiveness, efficiency, and timeliness of completing investigations through ongoing internal review team inspections.
- Continue to conduct administrative allegation inspections which are highly focused, fact-finding reviews that are limited to response of allegations of waste or mismanagement that have high visibility with DOE senior managers, members of Congress and the public. Also continue to review management systems issues that are identified during administrative allegation reviews.

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- Continue to manage the referral of Hotline allegations to DOE management or other agencies for appropriate action. Due to the decrease in inspections by the OIG, the number of referrals to management is expected to increase significantly. Also, the review of corrective actions taken by management would be reduced due to decreased staffing.

- Continue to manage the OIG review, to comply with the Inspector General Act, of existing and proposed legislation and regulations relating to the Department's programs and operations.

- Continue the OIG quarterly reporting to the Intelligence Oversight Board, and oversight of the Department's intelligence activities that are conducted in accordance with Executive Order 12333, "United States Intelligence Activities," as required by Executive Order 12863, "President's Foreign Intelligence Advisory Board."

- Continue to manage the OIG evaluation of qui-tam actions filed, pursuant to the provisions of the False Claims Act, to provide input to the Department of Justice.

- Continue to conduct inquiries to resolve allegations of whistleblower reprisals against contractor employees.

- Continue to provide oversight of operations and field office implementation of the whistleblower protection program.

- Continue to expect an increase in whistleblower reprisal allegation cases resulting from continued contractor downsizing activities.

- Continue to promote an increase in the utilization of alternative dispute resolution techniques.

- Continue to respond to Freedom of Information Act requests to the extent resources permit.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

The OIG's FY 1996 budget authority level of $25 million is not adequate to meet operating expenses for the year due to sharp budget reductions and additional costs. This level of funding is $6 million less than requested, and the situation has been further exacerbated by unfunded legislative mandates imposed on the OIG. Examples of these include transfer of the Office of Contractor Employee Protection (OCEP), with 14 FTEs, to the OIG with no additional funding, implementation in late FY 1995 of availability pay increasing investigator salaries by 25 percent, continuing costs associated with implementation of the Chief Financial Officers (CFO) Act and Government Management Reform Act (GMRA), and a potential requirement to audit the Working Capital Fund.

This situation requires the OIG to supplement its FY 1996 appropriation with unobligated balances carried over from the prior year. This results in actual operating costs significantly higher than the FY 1996 appropriation, and higher than the FY 1997 requested level. This situation, coupled with the nature of the OIG budget (which consists largely of nondiscretionary costs associated with a labor-intensive organization), results in the FY 1997 requested

funding level which will be a challenge for the OIG to perform the additional mandates of the GMRA with less resources. Under this Act, DOE is required to submit to OMB, and the Inspector General is required to audit, DOE financial statements covering all accounts and associated activities.

The FY 1997 request, and "comparable" data for FY 1995 and FY 1996, reflect the addition of the Working Capital Fund covering the OIG's Washington, D.C. and Germantown facilities. Such costs for OIG field sites will continue to be funded through the host Departmental facilities.

The OIG's field sites are located at or near major Department facilities offering the greatest potential to promote effective, efficient and economical operations through audits, inspections, investigations, and other reviews. The OIG continues to review its field structure to ensure its resources are used most efficiently, and recently closed its Dallas field office due to cancellation of the Superconducting Super Collider program.

V. Explanation of Average FTE Costs:

The average FTE costs depicted in Section II above indicate the extent to which the OIG's budget has declined, especially in relation to its authorized staffing levels. The FY 1995 average of $100,000 declines to $81,000 in FY 1996, due to budget reductions from an enacted level (comparable) of $33,996,000 in FY 1995 to $28,516,000 in FY 1996, and the authorized FTE level for FY 1996 (354) being higher than the actual FTE usage (339) used for the FY 1995 average (due to transfer of OCEP to OIG). Although the average of $92,000 requested for FY 1997 affords some relief, it is needed to help cover statutory mandates such as described above (OCEP, availability pay, CFO Act and GMRA, possible audit of Working Capital Fund, etc.).

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Departmental Administration

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEPARTMENTAL ADMINISTRATION
VOLUME 3
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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Departmental Administration					
Administrative operations					
Office of the Secretary	3,416	3,352	2,850	-502	-15.0%
Human resources and administration	128,984	113,547	120,538	6,991	6.2%
Chief financial officer	25,828	24,192	26,137	1,945	8.0%
Board of contract appeals	763	569	578	9	1.6%
Congressional, public, and intergovermental affairs	11,471	10,129	11,229	1,100	10.9%
General counsel	18,165	18,877	20,837	1,960	10.4%
Policy	28,579	25,254	28,622	3,368	13.3%
Economic impact and diversity	8,020	7,264	7,736	472	6.5%
Buyouts - personnel compensation and benefits	1,000	——	——	——	——
Total, Administrative operations	226,226	203,184	218,527	15,343	7.6%
Cost of work for others	24,356	22,826	26,336	3,510	15.4%
Subtotal, Departmental Administration (gross)	250,582	226,010	244,863	18,853	8.3%
Use of prior year balances and other adjustments	-34,965	-16,971	——	16,971	100.0%
Total, Departmental administration (gross)	215,617	209,039	244,863	35,824	17.1%
Revenues	-121,202	-122,306	-125,388	-3,082	-2.5%
Total, Departmental Administration (net)	**94,415**	**86,733**	**119,475**	**32,742**	**37.8%**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEPARTMENTAL ADMINISTRATION

PROPOSED APPROPRIATION LANGUAGE

For salaries and expenses of the Department of Energy necessary for Departmental Administration and other activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), including the hire of passenger motor vehicles and official reception and representation expenses (not to exceed $35,000), and the purchase of passenger motor vehicles (not to exceed12): [$366,697,000] $244,863,000, to remain available until expended, plus such additional amounts as necessary to cover increases in the estimated amount of cost of work for others notwithstanding the provisions of the Anti-Deficiency Act (31 U.S.C. 1511 et seq.): Provided, That such increases in cost of work are offset by revenue increases of the same or greater amount, to remain available until expended: Provided further, That moneys received by the Department for miscellaneous revenues estimated to total [$122,306,000] $125,388,000 in fiscal year [1996] 1997 may be retained and used for operating expenses within this account, and may remain available until expended, as authorized by section 201 of Public Law 95-238, [notwithstanding the provisions of section 3302 of title 31, United States Code] 31 U.S.C. 3302: Provided further, That the sum herein appropriated shall be reduced by the amount of miscellaneous revenues received during fiscal year [1996] 1997 so as to result in a final fiscal year [1996] 1997 appropriation from the General Fund estimated at not more than [$244,391,000] $119,475,000 (Energy and Water Development Appropriations Act, 1996)

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DEPARTMENT OF ENERGY
DEPARTMENTAL ADMINISTRATION APPROPRIATION
EXECUTIVE SUMMARY

Support To Departmental Mission

The Departmental Administration Appropriation (DA) funds salaries and expenses for the Office of the Secretary in addition to various staff and operating programs within the Department of Energy. Activities funded in this account support the Department's mission with internal customers (Direct Programs) as well as external customers including Congress, the Executive Office of the President, foreign dignitaries, and taxpayers.

DA organizations provide a range of products and services for external customers. These offices represent the Department by consolidating information from various sources and giving a Department-wide response to questions or issues. Professional services include: legal counsel, accounting, and financial services. These organizations perform a crucial central monitoring function for performance evaluation in support of the Secretary, ensure compliance with laws governing federal activity as well as specific programmatic activity, in addition to protecting against fraud, waste and abuse of federal funds.

Reinventing Government: This account is declining in size as a result of new technologies and redesign of the Department's mission in response to Congressional intent and National Performance Review suggestions. This managed downsizing will allow the Department to maintain strict controls, manage its workload, and prepare for the future. The enclosed budget proposes further structural reductions resulting from moving the four operations offices, Chicago, Idaho, Oak Ridge and Oakland together with the Office of Field Management to the Energy Supply, Research, and Development Appropriation. There is an additional proposal to transfer certain fixed headquarter expenses to a Working Capital Fund (more details on both items follow). On a comparable basis, accounting for both of these transfer, the account is in compliance with Executive Order 12837, for administrative savings. On a cumulative basis from FY 1993, this account has reduced administrative costs (including travel) in excess of 14%.

Field Operations: It is proposed that the four operations offices, Chicago, Idaho, Oak Ridge, and Oakland together with the Office of Field Management be funded separately from the Departmental Administration account. This proposal evolved as a result of a series of discussion which took place with the Office of Management and Budget, the primary elements at the affected field operations offices, and the appropriate Congressional staff. By creating a separate entity, Field Operations in Energy Supply, Research and Development, the Department is providing for a more focused resource management of the four multi-purpose field operations offices. This transfer moves these operations offices from an administrative account to a program account.

Working Capital Fund: During FY 1995 and FY 1996 funding in this account was significantly reduced to such an extent that management developed options to ensure adequate funding levels for critical operations and services to departmental programs. It was determined that the preferred method of financing such needed activities was by establishing a Working Capital Fund. The proposed Working Capital Fund will finance business-like activities traditionally funded in the Departmental Administration Appropriation. These activities in FY 1997 Working Capital Fund

include: rent, building operations, telephone services, postage, printing and graphics, supplies, copiers, contract closeout, and contract audits. These activities total approximately $93.3 million. The FY 1997 budget request is reduced for each dollar in the FY 1996 base for the working capital fund.

Activities in FY1997 will be financed by consuming organizations based on charges set using a variety of methods including: actual usage, space utilization, and percentage of employee population. The working capital fund contributions from the source appropriations are included in the respective program direction portion of their budgets. Actual amounts billed in the year of execution will be based on each organization's consumption of goods and services, that is, organizations will not be "taxed".

Program Overview:

DOE programs funded in this appropriation are: Office of the Secretary, Policy, Chief Financial Officer, Human Resources and Administration, Congressional, Public and Intergovernmental Affairs, General Counsel, Economic Impact and Diversity, and Board of Contract Appeals. Federal support functions include planning and national and international energy policy analysis, environmental policy, budget, accounting, legal, personnel, labor relations, staffing, organizational management, logistical services, printing, information management, contract management and reform, quality management, personal property management, scientific and technical training, congressional liaison, public and consumer outreach, economic impact and diversity, and contract dispute adjudication. Funding includes Departmental Administration employee travel and training, and contractual services such as support for DOE's overseas offices, budget and accounting systems, logistical services, automated data processing development and acquisition (non program specific), equipment maintenance, civil rights , each Departmental Administration sub-program's share of the working capital fund, and capital equipment. Also funds energy and environmental policy studies, public service announcements, newswire services, minority education/business/community support and assistance, and Department wide technical training development.

Cost of Work for Others

The budget provides for the cost of products and services provided by the field offices and national laboratories for non-DOE users. Work results from revenue programs related to the budgeted mission of DOE or is reimbursable work for state and local entities which are precluded by law from making advance payments. Costs are offset with revenues received from the sale of products or services.

Revenues

The revenues associated with the Cost of Work for Others program support the products and services described above. Miscellaneous revenues come from the sale of by-products that have no cost associated with the Departmental Administration appropriation, but offset the appropriation.

Budget Overview:

The total on-board head count projected for FY 1997 is 1,553 a 19 percent decrease from the FY 1995 baseline of 1,920.

The FY 1997 request provides $119.7 million for related salary and benefit expenses for 1,553 full-time equivalent employees. In this amount are $3.0 million of buy out costs for 65 employees to further streamline this account. The request also includes $ 2.7 million for travel funding continuing efficiencies required by the executive order. Funding for contractual support is $80.9 million. Cos t of Work for Others and Revenues are budgeted at $26.3 million and $125.4 million, respectively. The net appropriation request is $119.5 million compared to a comparable FY 1996 Enacted Appropriation of $86.7 million.

The following discussion compares major expense items on a comparable, total obligational authority basis, to show the relationship between FY 1996 operating level and FY 1997 requirements.

DEPARTMENTAL ADMINISTRATION
FY 1997 CONGRESSIONAL REQUEST

Obligational Authority ($ millions)	FY 1996 Comp	FY 1997 Cong Request	$ Change	% Change
Office of the Secretary	$ 3.4	$ 2.9	$ -0.5	-14.7%
General Mgt				
Personnel Comp & Benefits	115.0	119.7	4.7	4.1%
Other Expenses	79.6	83.6	4.0	5.0%
Program Support	10.9	12.4	1.5	13.8%
Cost of Work	22.8	26.3	3.5	15.4%
Revenues	-122.3	-125.4	-3.1	2.5%
Subtotal, Less Revenues	109.5	119.5	5.8	9.2%
Use of Prior Year Balances and Other Adjustments	-22.7	0	22.7	-100%
Dept Admin, Net Approp BA	86.7	119.5	23.2	37.8%

Summary of Changes:

Office of the Secretary - decreases by $0.5 million, resulting from reduced employment and related payroll costs.

Personnel Comp and Benefits - increase by $2.5 million, resulting from a $6.1 million decrease related to FTE reductions and $0.7 million decrease in buy out costs; offset by increases related to the pay raise of 4.2% ($4.5 million) and restoration of awards, overtime, and furlough funds ($7.0 million).

Other expenses - increase by $4.0 million, resulting from inflation of 3.2% ($2.4 million) and growth in the working capital fund expenses ($1.6 million).

Program Support - increases by $1.5 million, resulting from increases to Policy Studies.

Cost of Work for Others - increases by $3.5 million, resulting from increased federal requirements at Oakland.

Revenues Associated with Cost of Work for Others - increase $4.1 million consistent with increase above, offset by a $1.0 million decrease in miscellaneous receipts for added factor and depreciation.

Unobligated Balances - increase the requirement for new budget authority as a result of a one time reduction taken in FY 1996.

Other Adjustments - FY 1996 Comparable Budget Authority was reduced $4.6 million for unallocated residual associated with working capital fund activities.

Trends:

Some of the programs in this appropriation will continue to decline as a result of the Department's Strategic Alignment Initiative. Other offices could experience net growth for the same reason. For example, in an attempt to rationalize the Department's accounting functions, the Chief Financial Officer has consolidated all accounting functions from nineteen offices to three "Centers of Excellence". One of these centers is the Headquarters Accounting Office. As a result of this change, FTE requirements in the CFO's office will increase. Otherwise, we expect this account to decline as the Department's emphasis shifts to the main mission programs and decentralized field operations.

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DEPARTMENTAL ADMINISTRATION
FY 1997 CONGRESSIONAL REQUEST
PERSONNEL COMPENSATION AND BENEFITS
(DOLLARS IN THOUSANDS)

Sub-Program	FY 1995 Comp Adjusted	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Human Resources & Adm	60,944	56,740	-2418	54,322	56,272
Chief Financial Officer	16,652	16,408	33	16,441	17,491
Field Management	0	5,792	-5792	0	0
Board of Contract Appeals	750	557	0	557	566
Congressional, Public, & Int.	9,378	8,051	12	8,063	9,029
General Counsel	13,879	14,820	50	14,870	16,434
Office of Policy	15,108	14,625	47	14,672	15,843
Economic Impact & Diversity	4,034	3,552	23	3,575	4,012
Chicago Operations Office	0	18,504	-18504	0	0
Idaho Operations Office	0	8,631	-8631	0	0
Oak Ridge Operations Office	0	23631	-23631	0	0
Oakland Operations Office	0	13689	-13689	0	0
Total	120,745	185,000	-72500	112,501	119,647

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DEPARTMENTAL ADMINISTRATION
FY 1997 CONGRESSIONAL REQUEST
TRAVEL
(DOLLARS IN THOUSANDS)

Sub-Program	FY 1995 Comp Adjusted	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Human Resources & Adm	2,215	1,750	0	1,750	1,750
Chief Financial Officer	231	187	0	187	187
Field Management	0	250	-250	0	0
Board of Contract Appeals	7	6	0	6	6
Congressional, Public, & Int.	159	120	0	120	120
General Counsel	154	136	0	136	136
Office of Policy	671	537	0	537	537
Economic Impact & Diversity	114	96	0	96	91
Chicago Operations Office	0	660	-660	0	0
Idaho Operations Office	0	376	-376	0	0
Oak Ridge Operations Office	0	342	-342	0	0
Oakland Operations Office	0	360	-360	0	0
Total	3,551	4,820	-1988	2,832	2,827

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DEPARTMENTAL ADMINISTRATION
FY 1997 CONGRESSIONAL REQUEST
SERVICES
(DOLLARS IN THOUSANDS)

Sub-Program	FY 1995 Comp Adjusted	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Human Resources & Adm	63,050	103,729	-49448	54,281	59,316
Chief Financial Officer	8,593	5,015	2402	7,417	8,214
Field Management	0	4,429	-4429	0	0
Board of Contract Appeals	6	1	5	6	6
Congressional, Public, & Int.	1,834	7	1849	1,856	1,975
General Counsel	4,132	1,350	2521	3,871	4,267
Office of Policy	3,225	533	2612	3,145	3,821
Economic Impact & Diversity	777	136	557	693	733
Chicago Operations Office	0	6,853	-6853	0	0
Idaho Operations Office	0	10,862	-10862	0	0
Oak Ridge Operations Office	0	9350	-9350	0	0
Oakland Operations Office	0	7082	-7082	0	0
	81,617	149,347	-78078	71,269	78,332

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DEPARTMENTAL ADMINISTRATION
FY 1997 CONGRESSIONAL REQUEST
CAPITAL EQUIPMENT
(DOLLARS IN THOUSANDS)

Sub-Program	FY 1995 Comp Adjusted	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Human Resources & Adm	1,867	2,193	0	2,193	2,200
Chief Financial Officer	352	147	0	147	245
Field Management	0	14	(14)	0	0
Chicago Operations Office	0	93	(93)	0	0
Idaho Operations Office	0	137	(137)	0	0
Oak Ridge Operations Office	0	207	(207)	0	0
Oakland Operations Office	0	42	(42)	0	0
Total	2,219	2,833	(493)	2,340	2,445

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DEPARTMENTAL ADMINISTRATION
FY 1997 CONGRESSIONAL REQUEST
PROGRAM SUPPORT
(DOLLARS IN THOUSANDS)

Sub-Program	FY 1995 Comp Adjusted	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Scientific and Tech. Training	1,908	1,000	0	1,000	1,000
Public Affairs	54	50	0	50	65
Consumer Affairs	46	40	0	40	40
Minority Economic Impact	3,095	2,900	0	2,900	2,900
Policy, Anal., and Sys. Studies	3,505	2,900	0	2,900	3,493
Environmental Policy Studies	6,070	4,000	0	4,000	4,928
Total, Program Support	14,678	10,890	0	10,890	12,426

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DEPARTMENTAL ADMINISTRATION
FY 1997 CONGRESSIONAL REQUEST
USE OF UNOBLIGATED BALANCES
(DOLLARS IN THOUSANDS)

Sub-Program	FY 1995 Comp Adjusted	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Office of the Secretary	0	0	0	-852	0
Chief Financial Officer	-6351	-196	0	-196	0
Economic Impact & Diversity	0	-54	0	-54	0
Cost of Work for Others	-25356	-11269	0	-11269	0
Total, Use of Unobl. Bal.	-31707	-11519	0	-12371	0
Other Adustment	-3258	0	-4600	-4600	0
Subtotal	-34965	-11519	-4600	-16971	0

Note: Other adjustments - FY 1995 and FY 1996 Comparable budgets were reduced $3,258 and $4,600, respectively

DEPARTMENTAL ADMINISTRATION
FY 1997 CONGRESSIONAL REQUEST
PROGRAM FUNDING PROFILE
(DOLLARS IN THOUSANDS)

	FY 1995 Comp Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Office of the Secretary	3,416	2,500	0	3,352	2,850
Salaries and Benefits	120,745	185,000	-72500	112,501	119,647
Travel	3,551	4,820	-1988	2,832	2,827
Other Related Services	83,836	152,180	-78571	73,609	80,777
Program Support	14,678	10,890	0	10,890	12,426
Cost of Work for Others	24,356	22,826	0	22,826	26,336
Subtotal, Dept. Admin. (Gross)	250,582	378,216	-153059	226,010	244,863
Revenues					
Associated	-24864	-25788	0	-25788	-29788
Miscellaneous	-96338	-96518	0	-96518	-95600
	-121202	-122306	0	-122306	-125388
Subtotal, Dept. Admin.	129,380	255,910	(153,059)	103,704	119,475
Adjustment	-34965 \a	-11519 \a	0	-16971 \a	0
Total, Dept. Admin.	94,415	244,391	-153059	86,733	119,475
\a Use of PY Balances and Other Adjustments					
STAFFING					
HQ FTE	1,754	1,647	0	1,647	1,553
FO FTE	0	1,152	-1152	0	0
HQ EOY	1,730	1,559	0	1,559	1,528
FO EOY	0	1,065	-1065	0	0

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DEPARTMENTAL ADMINISTRATION
FY 1996 AND FY 1997 MANPOWER
ON A COMPARABLE BASIS

	FY 1995		FY 1996				FY 1997	
	Actuals		SAI		1/ Requirements		Congressional Request	
	FTEs	EOY	FTEs	EOY	FTEs	EOY	FTEs	EOY
Office of the Secretary	27	22	24	24	24	24	24	23
General Counsel	163	169	175	170	172	164	178	178
Congressional, Intergov'l, & Public Affairs	118	115	108	100	110	104	99	94
Board of Contract Appeals	8	6	6	6	6	6	6	6
Office of Policy	196	189	180	168	183	173	172	172
Economic Impact & Diversity	51	52	51	50	51	50	49	47
Chief Financial Officer	278	273	262	250	260	247	250	250
Human Resources And Administration	913	904	833	775	842	791	775	758
Subtotal, Deptl Administration	1,727	1,708	1,615	1,519	1,623	1,535	1,529	1,505
Total, Dept Admin (incl OSE)	1,754	1,730	1,639	1,543	1,647	1,559	1,553	1,528

1/ Note: FY 1996 FTEs/EOY Requirements correspond to the actual experience/projections by office and allows for a better funding comparison with FY 1997 than FY 1996 SAI.

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OFFICE OF THE SECRETARY

PROGRAM MISSION

The Office of the Secretary sets the direction and tone for the Department of Energy in establishing United States leadership in national security, environmental quality, energy resources, science and technology, and economic productivity with input from the Department's customers and stakeholders.

The GOALS of the Office of the Secretary is to:

Coordinate the efforts of the Department of Energy to reduce global nuclear danger; restore, stabilize, protect and enhance the environment; develop and deploy clean energy sources and enhance energy security; stimulate U.S. economic productivity; and leverage the Department's unique science and technology capabilities to provide knowledge that drives the nation's future.

The OBJECTIVES related to these goals are:

- Effectively support and maintain a safe, secure, reliable, and smaller stockpile without underground nuclear testing, safely dismantle and dispose of excess weapons, and provide technical leadership for national and global nonproliferation to reduce the continuing and new nuclear dangers in the world.

- Protect public health and the environment by understanding and reducing the environmental, safety, and health risks and threats from DOE facilities and develop the technologies and institutions required for solving domestic and global environmental problems.

- Develop and deploy energy efficient and renewable energy technologies; advance the efficient and environmentally responsible production, transportation and use of conventional energy sources; create sustainable energy technologies with high export potential; promote an equitable system of energy supply and end use for all consumers; and reduce the United States vulnerability to energy supply disruptions.

- Improve U.S. industrial competitiveness by promoting economic growth that stimulates the creation of high-wage jobs through research and development partnerships with industry, diversity in research and development collaborations, efficiency and pollution prevention, and global DOE technology usage and exports.

- Utilize the unique scientific and technological resources of our laboratories and universities to perform world class basic and applied research in commercial and national security arenas, that will advance U.S. security and economic productivity. The Department will continue to support a wide national science and technology portfolio.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEPARTMENTAL ADMINISTRATION
(Tabular dollars in thousands, Narrative dollars in whole dollars)

OFFICE OF THE SECRETARY

I. Mission Supporting Goals/Ongoing Responsibilities:

The Office of the Secretary sets the direction and tone for Department of Energy activities, which contribute to the welfare of the Nation by providing the technical information and the scientific and educational foundation for the technology, policy, and institutional leadership necessary to achieve efficiency in energy use, diversity in energy sources, a more productive and competitive economy, improved environmental quality, and a secure national defense.

Program Direction has been grouped into four categories:
Salary and Benefits provide funding for full-time permanent and other than full-time permanent employees, in the following classes: salaries and wages, overtime pay, cash incentive awards, lump sum leave payments, other performance awards, and payments to funds for the benefit of employees.

Travel provides funding for the Secretary, Deputy Secretary, Under Secretary, special assistants, and security detail to travel both internationally and domestically in support of the Department's missions.

No Support Services.

Other Related Expense provides funding for employee training and development.

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II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salary and Benefits	$ 3,049	$ 2,143	$ 0	$ 2,143	$ 2,537
Travel	360	307	0	307	307
Support Services	0	0	0	0	0
Other Related Expenses	7	50	0	50	6
Subtotal, Program Direction	$ 3,416	$ 2,500	$ 0	$ 2,500	$ 2,850
Prior Year Balances, Used	$ -852 1/			$ 852 2/	
Full Time Equivalents	27	24		24	24
Average Cost/FTE	$ 95	$ 104	$	$ 140	$ 119
Adjustment	$ 852			$ -852	
Budget Authority	$ 3,416	$ 2,500		$ 2,500	$ 2,850

1/ FY 1995 carry over balances.

2/ Carryover balances will be used in FY 1996 for the salary cost associated with the nomination to the position of Under Secretary, plus filling vacant staff positions within existing staffing allowances. The remaining carry over balance may be reprogrammed into the Departmental Administration Personnel Compensation and Benefits line item to help offset adverse actions to employees due to constrained FY 1996 Enacted funding.

III. Performance Summary:

FY 1995 Measurable Performance Activities:

- Committed to align, consolidate, and streamline organizations in the Department, eliminating 3,788 positions over the next five years. As of March, 2nd, 1996, reductions were ahead of schedule with on board staffing down by 920 positions since May through retirements and attrition.

- Committed to $14.1 billion in savings over the next five years through implementation of the recommendations from the Strategic Alignment, Galvin and Yergin Task Forces, and other cost savings initiatives, including privatization of four Power Marketing Administrations.

- Reduced Departmental directives by 50 percent and acquisition regulations by 25 percent, resulting in significant cost savings and avoidance.

- Improved the DOE average supervisor to employee ratio by 44%.

- Released more than 250,000 pages of records and helped thousands of citizens find information on their possible participation in human radiation experiments.

- Replaced bureaucratic internal and contractor oversight activities with effective self assessments, and completed self assessments in 95 percent of Headquarters and 83 percent of Field organizations establishing a baseline for improved quality processes.

- Received four Vice President Gore "Hammer Awards" for initiatives that will result in $3 billion in cost avoidance over the next five years primarily at a Power Marketing Administration.

FY 1996 and FY 1997 Measurable Performance Activities:

- Continue to reduce levels of management (improve supervisor to employee ratio and attain 1 to 15 by FY 1999).

- Increase employee responsibility by delegating more authority to the field, by sharing resources, and promoting "cross-servicing" arrangements..

- Continue efforts initiated in FY 1995 to lessen the burden of the Department's regulations.

- Achieve SAI savings in FY 1996 of $221 million by reducing staff by 10 percent and decreasing operational costs through office closings, consolidations, and organizational efficiencies.

- Achieve SAI savings in FY 1997 of $304 million by reducing staff by an additional 9 percent and decreasing operational costs through office closings, consolidations, and organizational efficiencies.

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III. Performance Summary: Office of the Secretary (Cont'd)

- o Continue to use workforce management tools such as buyouts, attrition, out placement, managed hiring, and involuntary separations to achieve a staffing target of 10,874 by October 1998. As of March 2nd,1996, actual employment was 12,698, which is down from a total of 13,618 on board in April 1995.

- o Continue to improve contract reform and performance measurements to increase accountability in all our activities.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $394K in Personnel Compensation and Benefits reflects the full effect of the FY 1996 pay raise, the partial year effect of the FY 1997 pay raise, and the use of prior year balances in FY 1996.

The decrease of $44K in Other Related Expense reflects a one time expense in FY 1996 involving public affairs services in support of public media affairs.

V. Explanation of Average FTE Costs:

The average FTE cost decrease of $21K/FTE reflects the one-time cost of supporting public affairs activity in FY 1996, the unobligated carryover in FY 1996; partially offset by the Personnel Compensation and Benefits increases discussed above. Note, FY 1996 average cost/FTE is distorted by the reflected unobligated balances.

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HUMAN RESOURCES AND ADMINISTRATION

PROGRAM MISSION

PROGRAM OVERVIEW

This budget submission covers the Office of Human Resources and Administration, the Office of Quality Management, and the Secretary of Energy Advisory Board. These three offices support the program missions of the Department of Energy in two broad ways: (a) by providing strategies, tools, and advice in a wide range of disciplines to help the entire Department to be more effective in managing its changing missions and (b) by supplying direct services that enable other offices, especially in (but not limited to) Headquarters components, to perform their functions in a quality and cost-effective manner. Taken together, these roles seek to leverage resources representing less than one percent of the DOE budget into improvements and services on behalf of the entire Department.

As change agents, these offices are responsible for much of the Department's agenda derived from the strategic alignment, quality management, contract reform, laboratory management, strategic energy research and development, downsizing, and reengineering initiatives as well as a host of activities in support of the National Performance Review. Disciplines as diverse as information management, telecommunications, contract administration, training, and personnel administration have been used over the FY 1995-96 period to guide and support such visible and significant changes as the following:

- One fourth of the Strategic Alignment Implementation projects are championed from these offices.
- DOE orders have been cut in half.
- A Laboratory Operations Board is reducing the management costs of the Department's laboratory system
- A Chief Information Officer organization has been established.
- The Department's Career Transition Handbook is a model for all Federal agencies.

- o Every program now has customer service plans, and the Department has published Customer Service Standards.

- o New Senior Executive Service standards now measure quality management behaviors and are being further changed to include "360 degree" performance feedback.

- o The Freedom of Information Act backlog is being eliminated.

During this same period, as direct service providers, these organizations have been setting an example for downsizing, streamlining, and reengineering. Human Resources and Administration, for example, has reduced staffing from FY 1994 to the present at four times the staffing reduction rate of the rest of the Department, from over 1000 to under 800. The number of buildings occupied in Headquarters has declined from 16 to 13 in recent months, on a path to achieve occupancy of only 4 buildings over the longer term. The number of HR&A supervisory positions has decreased by more than half over 2 years, and the amount of photocopies generated in Headquarters declined by a quarter in a single year. HR&A overtime costs in FY 1996 have decreased 64% since FY 1994. These are but a few of the many examples of significant cost reductions occuring within these organizations.

As discussed in more detail below, the offices plan to build on the progress of FY 1995-96 in the coming year with further support for strategic alignment, contract reform, customer service, quality management, the ongoing openness initiative, and the National Performance Review.

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The major shift in budget resources from FY 1996 to FY 1997 involves the creation of a Working Capital Fund to finance common administrative costs (for example, rent, building services, and supplies). Authorized by the Department of Energy Organization Act, and pursuant to congressional direction in the FY 1996 budget process, the Fund permits clear allocation of administrative costs to mission programs. It promotes efficiency by ensuring the program offices are cognizant of administrative costs, and provides a flexible framework for managing administrative operations in a business-like manner.

Statements of Strategic Purpose

Office of Human Resources and Administration Strategic Goals

- To provide strategies and tools in support of DOE mission priorities; to align, rightsize, diversity, and develop human resources; and to create more business-like corporate management practices.
- To implement cost reduction within the Department and be the provider of choice for best-value products and services through the Working Capital Fund.
- To maintain quality management on all levels of the organization with continuing improvement in communication, customer satisfaction, employee participation and development, effective partnerships, and processes, with emphasis on results.

Quality Management Mission

The Office of Quality Management serves as the corporate-level catalyst for accelerating the transformation of the Department of Energy to a customer-centered, quality culture. The Office provides the corporate quality framework, expertise, training, and information processes in partnership with customers and stakeholders.

Secretary of Energy Advisory Board

The Board provides expert guidance to the Secretary on matters concerning the Department's management reforms; research, development, and technology activities; and the Department's energy, environmental and national security responsibilities.

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PERFORMANCE MEASURES

HR has prepared crosscutting performance measures for the entire organization as well as specific service commitments for each of the individual administrative disciplines. The following are examples from the most recent strategic planning:

- o Crosscutting
  - Customer service satisfaction as measured by survey and by benchmarking with other agencies;
  - Reduced cost, expressed in dollars, staffing, overtime, space, and other inputs;
  - Reduced cycle time.
- o Information Management - One-third reduction in hardware installation time and further10% reduction in printed output. Consolidation of 75 software contracts into 3 enterprise-wide contracts with annual savings of $2 million.
- o Procurement - 50% reduction in procurement regulations and 40% reduction in procurement request processing time. Triple use of Purchase Cards.
- o Human Resources - 50% increase in Department-wide participation in career mobility programs; 10% annual increase in Career Centers; 50% reduction in personnel actions requiring Headquarters review; 80% completion rate of assigned requirements for Technical Leadership Development Program.
- o Management Practices - 66% reduction from FY 1995 level of Field directives; 10% cycle time reduction for Work-for-Others agreements; 20% reduction in facility energy consumption; a further decrease in paper copy use of 20%; 80% of first tier organizations using automated document control system.

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HUMAN RESOURCES AND ADMINISTRATION

I. Mission Supporting Goals/Ongoing Responsibilities:

Human Resources and Administration (HR) is responsible for personnel, training and development, information management, procurement, organization and management, the executive secretariat, and administrative services. Human Resources and Administration works in partnership with its customers to support the mission of the Department of Energy and enhance the effectiveness and well-being of its people. The Office of Quality Management provides the corporate quality framework, expertise, training, and information processes for the Department in partnership with customers and stakeholders. The Secretary of Energy Advisory Board provides expert guidance to the Secretary as requested on a broad range of Department of Energy topics.

Program Direction has been grouped into four categories:

Salary and Benefits provide for funding for full-time permanent and other than full-time permanent employees, in the following classes: salaries and wages, overtime pay, cash incentive awards, lump sum leave payments, Senior Executive Service and other performance awards, payments to funds for the benefit of employees, workman's compensation, and buy out compensation.

Travel funds finance staff travel, DOE advisory board activities, quality management field interface, travel associated with scheduling and logistics for Secretarial trips, and travel associated with permanent change of station. Also includes DOE shuttle bus service, rental of vehicles from the GSA motor pool, lease of DOE fleet, and charter of aircraft or buses.

Support Services finance technical support services and management support services.

Other related expenses finance the acquisition of goods and services that support this office's mission that are not considered support services, in addition to items purchased from the working capital fund, for example, rent, supplies, telephone service, etc.

Program Support includes funding for the Scientific and Technical Training Program for DOE-wide technical curriculum development, training standards and guidelines, and advanced learning technologies, such as, automated course catalogues, video and computer training. Includes funding for the Energy Technical Training Center.

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II. Funding Table:

($ thousands)	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salary and Benefits	$ 60,944	$ 56,740	-2,417	$ 54,323	$ 56,272
Travel	2,215	1,750	0	1,750	1,750
Support Services	24,896	28,980	0	28,980	28,980
Other Related Expenses	40,021	76,942	-49,448	27,494	32,536
Subtotal, Program Direction	$ 128,076	$ 164,411	-51,865	$ 112,547	$ 119,538
Prior Year Balances, Used	519	0		3,491	0
Total Obligational Authority	128,595	164,411		116,038	
Full Time Equivalents	920	842		842	775
Average Cost TOA/FTE	139.8	195.3		137.8	154.2
Scientific and Tech Training	$ 1,908	$ 1,000		$ 1,000	$ 1,000
Adjustment	-519			-3,491	
Budget Authority	$ 129,984	$165,411		$ 113,546	$ 120,538

III. Performance Summary:

FY 1995 Measurable Performance Activities:

- o DOE orders have been reduced by 50% since October, 1993, one year ahead of schedule. These actions eliminated non-value added requirements, reduced paperwork, improved operations, and decreased expenditures.

- o As a result of the Strategic Alignment Initiative, the Department developed a plan to reduce staff by 3,800 FTEs by FY 2000 with an associated savings of $800M. The plan also reduces overhead costs, consolidates organizations, and initiates a range

of continuous improvement actions. The Departmental Streamlining Plan was completed and submitted to OMB and the National Performance Review.

- Implement more flexible performance management system for Senior Executive Service which measures achievement of strategic corporate goals and objectives as well as core competencies in areas such as leadership, customer service, re-engineering of work processes efforts, quality advocacy, building of teams and development of employees. The system includes feedback from multiple sources, such as customers and stakeholders and development of team goals and awards.

- Secretary of Energy Advisory Board Task Force on Alternative Futures of the Department of Energy National Laboratories provided recommendations regarding management and mission at the Department's ten multi-program laboratories. The Department will implement 25 of the 29 recommendations.

- The Department established a Laboratory Operations Board to review and provide advice on efforts to reduce the direct and indirect costs associated with management and supervision of the Department's laboratory system.

- Secretary of Energy Advisory Board Task Force on Strategic Energy Research and Development released its final report entitled: Energy R&D: Shaping Our Nation's Future in a Competitive World. The report concluded that federal support for energy R&D is "essential to our Nation's future well-being," contributing to economic growth, security, environmental quality and competitiveness in the international marketplace.

- Significant progress was made in the effort to establish interoperable electronic mail and file transfer capabilities throughout the Department and with other Government agencies, the science and education sector, and the public.

- Secure Information Management and Exchange System (SIMEX) replaced the Department's Secure Automatic Communications Network and the Wideband Communications Network. SIMEX is resulting in cost-savings of more than $500,000 per year and is providing users with significantly increased capabilities. SIMEX is the first civilian agency sponsored system to receive the certification of the Defense Information System Agency.

- Installed new Freedom of Information Act tracking system, reducing backlog by 78%.

- The Training and Human Resource Development Program completed the Technical Personnel Qualification Standards and the Strategic Alignment Implementation Plan while continuing to complete professional competency and training

III. Performance Summary: Human Resources and Administration (cont).

development, career transition programs and workshops, and learning systems delivery components to enhance leadership and managerial and employee capacities in procurement, project management, and cost control and analysis.

- Completed DOE internal Organizational Self-assessments establishing a baseline for improved quality processes and measured baseline external customer satisfaction.

- Revised Department of Energy Customer Service Standards published in the Vice President's 1995 Customer Service Report "Putting Customers First '95: Standards for Serving the American People."

FY 1996 Measurable Performance Activities:

- Implement plan to streamline the Department by use of buyouts and early retirements, delayering efforts, retraining staff to work in teams with an emphasis on efficiency and improved customer service, and the development of partnerships with labor organizations and customer groups. Develop and provide services to assist employees in career transition including employment related seminars and workshops, career counseling, and use of the Career Management Resource Center.

- Developed a Career Transition Handbook adopted by OPM as a model for all Federal Agencies.

- Implement new performance appraisal system for managers and supervisors other than Senior Executive Service employees modeled on the Senior Executive Service system.

- Achieve an 80% reduction in supplemental field directives; Accomplish an additional 10% reduction in DOE internal regulations above the 50% achieved in FY 95.

- Develop a space management plan which will consolidate Headquarters personnel into four core locations from existing 16 locations to save $18M over next five years.

- Implement a Working Capital Fund for improving resource management and provide clear allocations of administrative costs to mission programs.

- Re-engineer the information management business processes yielding both customer service improvements and approximately $35M in savings over the next five years.

III. Performance Summary: Human Resources and Administration (cont.)

- Leverage the Departmental information management resources to ensure cost savings and improved efficiencies in programmatic and administrative business processes. Consolidate information technology acquisitions and service centers resulting in approximate savings of $100M over the next five years.

- Establish a corporate approach to managing Departmental information which is integrated and coordinated across the Department resulting in savings of $40M over the next five years. Develop an integrated information infrastructure.

- Develop and deliver an integrated and systematic quality training curriculum, resulting in increased customer satisfaction, behavioral change toward core values, and positive participant feedback.

- Communicate best practices throughout the Department which have resulted in cycle time reduction, elimination of waste, improved customer satisfaction, and cost savings and the avoidance of duplication (for example, electronic sharing of information, videos, and written communication).

- The Training and Human Resources Development Program to institute a corporate framework for development and use of managerial, technical, professional, and business practices competencies and learning materials through leadership centers coordinating classroom delivery, team and self-development workshops and consultation, and distance learning technologies.

- Eliminate Freedom of Information Act backlog of requests from prior to 1995 and implement a pilot centralization program. Revise the Departments Freedom of Information Act regulations.

- Establish a SEAB subcommittee to review declassification and other openness issues, with the goal of expanding and institutionalizing the Department's openness initiative.

- Build increased in-house capabilities for training and facilitating, resulting in dramatic reduction of reliance on contractor support services.

- Elimination of waste and redundancy through use and application of information from best practices network.

FY 1997 Measurable Performance Activities:

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III. Performance Summary: Human Resources and Administration (cont.)

- Continue to re-engineer the information management business processes yielding both customer service improvements and savings over the next four years.

- Continue the leverage of Departmental information management resources to ensure cost savings and improved efficiencies in programmatic and administrative business processes. Continue to consolidate information technology acquisitions and service centers resulting in savings over the next four years.

- Continue a corporate approach to managing Departmental information which is integrated and coordinated across the Department resulting in savings over the next four years. Implement an integrated information infrastructure.

- Continue declassification review and other openness initiatives.

- Continue to build the Department's in-house capability to implement quality management initiatives.

- Improve management practices in order to expand DOE employee capability for customer satisfaction.

- Expand use of performance measurement to improve Departmental operations using the Presidential Award for Quality criteria.

- Support strategic alignment implementation process by focusing action on core business and support processes.

- Implement the space management plan which will consolidate Headquarters personnel into nine locations by the end of FY 1997.

- Continue the use of training and development tools to direct available work force and learning resources toward changing mission priorities and management improvement goals.

- Implement Electronic Commerce system Department-wide for small purchases.

- Implement Contract Reform procedures and streamline procurement process to permit right-sizing of the Procurement organization.

- Incorporate excellence incentives into new contract awards to obtain best possible performance from contractors

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III. **Performance Summary: Human Resources and Administration (cont.)**

- Continue streamlining the Department using buyouts and early retirements, delayering efforts, retraining staff to work in teams with an emphasis on efficiency and improving customer service, and developing partnerships with labor organizations and customer groups. Develop and provide services to assist employees in career transition including employment related seminars and workshops, career counseling, and use of the Career Management Resource Center.

- Streamline personnel systems to reduce administrative processing time frames, provide improved customer service, and increase the use of automation. Revise employee pay and classification systems to improve the Department's performance in rewarding, retraining, and recruiting technical excellence in the workplace.

- Implement centralized Freedom of Information Act program and eliminate any backlog of 1995 requests.

- Continue use of Quality Self-Assessment to measure progress and target areas for continuous improvement.

- Develop corporate-wide mentoring program among program offices and corporate-level strategic alignment teams.

IV. **Explanation of Funding Changes FY CY to FY BY:**

On a comparable basis, using Budget Authority only, the funding for this account increases by $7.0M. Of this amount $ 2.0M can be explained by increases to personnel compensation and benefits. FTE reductions savings (-$4.1M)and fewer buyouts (-$0.5M); offset by furlough reductions ($1.3M), payraise ($2.5M), and restoration of awards and overtime ($2.8M). Contractual services increase by $5.0M; $1.8M in inflation, $2.3M funded in FY 1996 with unobligated balances and $0.9M to support payroll outsourcing (additional requirements).

On a comparable basis, using total obligation authority, the funding for this account increases by $3.5M. Personnel Comp and Benefits are offset with$1.2M of prior year balances and Contractual Services are offset by $2.3M..

V. **Explanation of Average FTE Costs:**

Average FTE costs increase by $16.4K/FTE. $9.0K/FTE is related to the $7.0M funding increases discussed above. The $7.4K/FTE difference relates to fixed portions of this office's contractual expenses that support mainline programs, for example the corporate mainframe computer and the shuttle bus service. These expenses will not decline consistent with the FTE reductions in this office.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEPARTMENTAL ADMINISTRATION APPROPRIATION
(Tabular dollars in thousands, Narrative in whole dollars)

OFFICE OF CHIEF FINANCIAL OFFICER

I. Mission Supporting Goals/Ongoing Responsibilities:
The Office of Chief Financial Officer (CFO) provides centralized direction and oversight on the full range of financial matters: responsibility for the Department's budget including formulation, presentation and execution; Department-wide compliance with the requirements of the Federal Managers' Financial Integrity Act (FMFIA); Departmental accounting and financial policies, procedures and directives; operation and maintenance of the Department's payroll system and financial information system/Standard General Ledger; performance of financial management functions (accounting, cash management, and reporting). In addition to these department-wide responsibilities for Headquarters offices, the CFO performs selected financial management functions for field locations; oversight of financial operations for the Naval Petroleum Reserves in California and Wyoming; and responsibility for overall quality budget formulation, execution, and financial compliance activities within the Department, including continued improvement of coordination and communications between Departmental headquarters and field organizations.

Overall, the CFO's budget increases slightly while FTEs will decrease by 4%. This is due to the Strategic Alignment Initiatives to streamline processes and increase our efficiency. One Strategic Alignment Initiative calls for consolidating 19 accounting centers into three by the end of FY 1997. The Office of Headquarters Accounting Operations will become one of three Departmental Centers of Excellence. The Headquarters center will consolidate six accounting organizations into one center, making it the largest volume accounting center in the Department. The consolidation of accounting organizations will save the Department $17.7 million and 61.5 FTEs over a five year period, but will minimally increase the headquarters budget. A second Strategic Alignment Initiative calls for outsourcing the payroll function during calendar year 1998. This will result in a cost avoidance between $7.2 million and $15 million in systems enhancement costs: however, we will need to invest $375,000 in FY 1997 to reap these savings.

The Department of Energy is a leader in the field of financial management and is ranked among the best in government and industry and is committed to enhancing its quality. This leadership is expressed in five major thrusts: Financial Stewardship, Full Partnership, Customer Orientation, Human Resource Management, and Technology/Information Architecture. CFO supports the Department's strategic goals as promulgated in the Department's Mission Statement and Strategic Plan. The Core Values of the Department are detailed in our goals and objectives. Sound financial management is essential to accomplishing the Department's goals, especially during a transition to emphasize core business strategies.

Program Direction has been grouped into four categories:

Salary and Benefits provide for funding for full-time permanent and other than full-time permanent employees, in the following classes: salaries and wages,

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overtime pay, cash incentive awards, lump sum leave payments, Senior Executive Service and other performance awards, payments to funds for the benefit of employees, workman's compensation, and buy out compensation.

Travel funds finance staff travel for Department-wide and CFO activities including travel associated with the Departments' initiatives for accounting consolidation and payroll outsourcing.

Support Services finance technical support services and management support services.

Other Related expenses finance the acquisition of goods and services that support this office's mission that are not considered support services, for example items purchased from the working capital fund, for example, rent, supplies, telephone service.

II. Funding Schedule:

Headquarters	FY 1995 Comparable Appropriation ($000)	FY 1996 Original Appropriation ($000)	Real & Comp Adjustments ($000)	FY 1996 Comparable Appropriation ($000)	FY 1997 Budget Request ($000)
Salary and Benefits	$16,652	$16,408	$33	$16,441	$17,491
Travel	231	187	0	187	187
Support Services	5,011	4,073	0	4,073	4,073
Other Related Expenses	3,944	1,089	2,402	3,491	4,386
Subtotal	25,838	21,757	2,435	24,192	26,137
Adjustment	0	(196)	0	(196)	0
Total Budget Authority	**25,838**	**21,561**	**2,435**	**23,996**	**26,137**
Prior Year Balances	135	1,109	0	1,109	0
Total Obligational Authority	**25,973**	**22,670**	**2,435**	**25,105**	**26,137**
Full Time Equivalents	278	260		260	250
Average FTE Cost	$93	$87		$97	$105

FY 1997 Funding Summary

The Office of the Chief Financial Officer's FY 1997 budget request is $26,137,000, an increase of $2,141,000 over the FY 1996 requirement of $23,996,000. (The FY 1996 requirement has been supplemented by $1,109k of unobligated balances.) The FY 1997 request provides funding for 250 Full-time equivalent (FTE) positions, a decrease of 10 FTEs or -4% from the FY 1996 level of 260 FTEs. The FY 1997 FTEs reflects a 10 % reduction over two years while accommodating

a major increase in the workload by becoming one of three centers of excellence processing centers. Were it not for the growth necessary to staff the processing center of excellence, the CFO staffing level would be down by over 17%.

III. Performance Summary:

FY 1995/1996 Measurable Activities:

Obtained an unqualified opinion on all the Department's ten financial statements required under the CFO Act of 1990. These statements cover one quarter of the Department's total budget authority, and include power marketing, nuclear material waste management, decontamination and decommissioning, isotope production, oil sale and reserve activities, as well as the Federal Energy Regulatory Commission.

Coordinated and ensured the quality of the Department's management control program and prepared the Secretary's annual Federal Managers' Financial Integrity Act (FMFIA) Report to the President and Congress.

Consolidated five budget execution directives into a single order as part of the Secretarial initiative to reduce and streamline Departmental Directives.

Worked with Congressional staff and significantly improved the quality and shortened the length of the Congressional Budget.

Conducted Department-wide campaign to promote direct deposit of salary and travel payments, which resulted in raising the salary participation rate to 93% and increased travel participation by 20% from 15% to 35%.

Enhanced Budget execution process to distribute funds to include reimbursable work, eliminating requirements to issue separate allotments for direct funding and reimbursable funding.

Successfully completed planning and implementation of many process improvements, automated and otherwise, to travel systems to facilitate ease of use and control of funds while reducing human resource requirements significantly.

Developed a "Status of Appropriations" monthly report in response to a request from the House Energy and Water Appropriation Subcommittee to aid in tracking budget execution of DOE appropriations.

Completed and issued the "DOE U.S. Government Standard General Ledger Accounting Guide" and electronically transmitted a Standard General Ledger trial balance to Treasury's Federal Agency Centralized Trial Balance System representing all of the Department's non-power marketing financial activity in FY 1995. The Department completed all system development efforts, including documentation, in accordance with Treasury's current requirements.

Maintained a 95% prompt payment percentage for FY 1995, matching the targeted goal for the Department.

Developed new policy for the Voucher Accounting for Net Expenditures Accrued (VANEA) process for cost certifications of the management and operating

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contractors.

FY 1997 Measurable Performance Activities:
Coordinate and ensure the quality of the Department's management control program and prepare the Secretary's Annual FMFIA Report to the President and Congress.

Complete third and final phase of Management Analysis Reporting System (MARS) implementation.

Submit Department-wide audited FY 1996 financial statements to the Office of Management and Budget.

Electronically transmit a Standard General Ledger trial balance to Treasury's Federal Agency Centralized Trial Balance System representing all of the Department's non-power marketing financial activity in FY 1997.

Reduce the volume and increase the usefulness of the OMB and Congressional Budget.

Streamline the field budget process to save both contractor and Federal staff devoted to the process while providing needed information to Headquarters in a timely fashion.

Maintain a 95% prompt payment percentage for FY 1997, matching the targeted goal for the Department.

Complete consolidation of accounting functions from three field accounting centers at the Headquarters accounting center.

Obtain contractual support services for the CFO Annual Report; DOE Accounting Practices and Procedures; and other analyses and reports.

Use contractual services and capital equipment funds to support automation requirements including systems development and maintenance. The systems are essential for financial controls, accounting, and report to external parties including OMB and Congress.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

●**Personnel compensation and benefits** reflect an increase of $1,050,000 in new Budget Authority but only a $750,000 increase with the use of prior year balances ($300k) in FY 1996. The increase reflects funding for a 4.2% payraise ($.7M), restoration of awards and overtime ($.4M), and not implementing furlough days in FY 1997 ($.4M) This increase is offset by a -$.7M FTE savings. The decrease in FTEs is due to streamlining processes based on a Strategic Alignment Initiative.

●**Travel** funding remains constant with FY 1996 at $187,000. Travel associated with the Department-wide activities are reduced commensurate with the reduced FTEs; however, there are increased requirements necessary for activities associated with the Departmental initiatives for accounting consolidation and payroll outsourcing. The increase has been offset by a decrease in travel costs associated with compliance reviews. The CFO has reduced the number of periodic reviews

at field organizations as a result of improved performance resulting from closer oversight of financial operations by field managers and focusing on performance indicators rather than field visits.

Contractual Services:

Contractual Services include Support Services and Other Related Expenses. In contractual services, the increase is limited to Other Related Expenses only. Other Related Expenses in FY 1997 are $4,386,000, an increase of $ $895,000 over the FY 1996 funding level of $3,491,000. This increase is only $252,000 greater than FY 1996 level when FY 1996 is adjusted for the use of prior year balances. In addition, ADP funding which is located in both categories, is discussed separately below.

- Support Services funding reflects management and technical support activities. The funding for these activities is $4,073k in FY 1997 which is unchanged from the FY 1996 funding level. (See Table Below)

CFO Support Services	FY 1995 ($000)	FY 1996 ($000)	FY 1997 ($000)	FY 1997/FY 1996 Change ($000)
Financial Management Development Training	$25	$43	$43	$0
Budget Support Services and Compliance support for systems review	465	664	664	0
Management Control Training	43	24	24	0
Payroll Support	0	28	28	0
Support on the updating and reviewing of the Accounting Handbook	20	20	20	0
Subtotal	**553**	**779**	**779**	**0**
ADP Support:				
Support for Department-wide finance accounting and budgeting systems including development enhancement	4,249	3,208	3,208	0
Support for source data collection data entry, data validation and report generation	209	86	86	0
Subtotal ADP Support	**4,458**	**3,294**	**3,294**	**0**
Total CFO Support Services	**5,011**	**4,073**	**4,073**	**0**

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• **Other Related Expenses** includes funding for Training, Working Capital Fund, Payroll Initiatives, and Capital Equipment. (See Table Below)

Other Related Expenses	FY 1995 ($000)	FY 1996 ($000)	FY 1997 ($000)	FY 1997/FY 1996 Change ($000)
Training	$84	$63	$89	$26
Working Capital Fund	2,371	2,402	2,558	156
Payroll Initiatives	0	221	375	154
Subtotal	**2,455**	**2,686**	**3,022**	**336**
ADP Support:				
Software Procurement /Maintenance Activities/Capital Acquisitions	1,200	1,225	1,224	(1)
Subtotal ADP Support	**1,200**	**1,225**	**1,224**	**(1)**
Other	289	160	140	(20)
Total Obligational Authority	**3,944**	**4,071**	**4,386**	**315**
Use of Prior-Year Balances	0	580	0	(580)
Total Budget Authority	**3,944**	**3,491**	**4,386**	**895**

Training funding is $89,000 versus $63,000 in FY 1996. The increases for training are related to the payroll personnel whose jobs will be eliminated or significantly re-engineered when the payroll function is outsourced to another agency in 1998. The training funds are targeted for worker retraining to assist payroll technicians in qualifying for other jobs internal and external to the CFO's office.

Working Capital Fund is $2,558, 000, a modest increase of $156,000 over FY 1996 ($2,402k). The increase is related to inflation of 3.2%.

Payroll initiatives increase due to a one time funding requirement that would maintain basic payroll functions during the outsourcing of the payroll system to another agency.

Other includes funding for additional support necessary to consolidate six accounting centers into the Headquarters accounting center, implementation of performance measures for financial operations and other Departmental Activities required by the Chief Financial Officers Act of 1990 and the

Government Performance and Results Act, and reimbursement of costs associated with the Department of Health and Human Services (HHS) grants payment system, which began in FY 1996 and must be fully implemented by FY 1997.

♦**ADP support** does not increase from FY 1996 to FY 1997. Several initiatives associated with the Management Analysis Reporting System were initiated in prior years and now are requiring less intensive ADP support; however, other CFO systems will be undergoing development efforts. The Project Data System will provide management and operating contractors, field offices and headquarters program offices with automated access to a centralized database and processing functions for producing consistent project data sheets. The CFO is charged with developing and maintaining the largest financial information system in the Department. These funds are essential to gain savings in other areas.

ADP Support	FY 1996 ($000)	FY 1997 ($000)	Change ($000)
CFO support for LAN	$25	$15	($10)
Policy support for LAN and Juris/Lexis Nexis	41	34	(7)
Compliance support for LAN and audit and tracking system	63	59	(4)
Departmental accounting support for maintenance, DISCAS maintenance, MARS development, FMS training, Payroll support, timesharing and hardware maintenance. Budget support for LAN, Financial Management Enhancement, Funds Distribution System, Budget Tables and Project Data System	3,643	3,624	(19)
Headquarters Accounting support for LAN, software/hardware maintenance and upgrades, MARS implementation and timesharing	562	541	(21)
Capital Acquisitions	185	245	60
Total CFO ADP Support	**4,519**	**4,518**	**(1)**

IV. Explanation of Average FTE Costs:

The increase in average FTE costs from $97,000 in FY 1996 to $105,000 in FY 1997 reflects funding that includes fixed costs incurred for the three Centers of Excellence and outsourcing the payroll. The FTEs have decreased due to streamlining the budget function and outsourcing the payroll function.

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BOARD OF CONTRACT APPEALS

PROGRAM MISSION

The Board of Contract Appeals is an administrative tribunal, responsible to the Secretary and under law for the fair and impartial trial and adjudication of a variety of disputes. With few exceptions, these disputes are related to the Department's acquisition and financial assistance programs. The Board exercises an array of statutory and delegated authorities. Board decisions constitute final agency decisions and are not subject to administrative review or modification. The Board has an extensive Alternative Dispute Resolution program and is the Department's primary source of neutrals for out-lay related disputes.

The GOAL of the Board of Contract Appeals is to:

Provide to the fullest extent practicable, informal, expeditious, and inexpensive resolution of contract and financial assistance related disputes pursuant to the Contract Disputes Act of 1978, the Alternative Disputes Resolution Act and other authority.

The OBJECTIVES related to the Board's goal are:

- To contribute to mutually beneficial relationships between the Department and its contractors and financial assistance recipients.
  - Hear and decide disputes or resolve them through alternative means, vindicating the Department's and the contractor's or recipient's contractual expectations in an expeditious, economical, fair, and impartial manner.
- To advance the implementation of alternative dispute resolution.
  - Contract dispute resolution without trials and decisions, saves substantial public and private resources in appropriate cases.

Performance Measures:

The Board's performance measures are derived from the Contract Disputes Act which requires the Board to provide to the fullest extent practicable, informal, expeditious, and inexpensive resolution of disputes. To that end, at the outset of most cases, the Board, after consultation with the parties, issues a Comprehensive Scheduling Order which sets out time limits to be met by the parties for various stages of the case. These limits are designed to advance the speed and control the costs of litigating the case as well as to enhance the prospects of settlement, all without compromising fairness. Scheduling orders are carefully monitored to ensure fairness and compliance.

Major Activities:

- Adjudication: Adjudicate disputes between the Department and its contractors under the Contract Disputes Act proceeding in a manner similar to a Federal District Court without jury. Provide similar services with respect to financial assistance, patent, and licensing controversies. The Department is an adversary party in these proceedings and the Board's decisions are not reviewed by the Department.

- Mediation: Mediate and provide other neutral services to assist in the resolution of disputes between the Department and its contractors and between the Department's cost contractors and their subcontractors.

- Find Facts: Receive evidence and find facts relating to proposed debarments and suspensions of contractors and financial assistance recipients.

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BOARD OF CONTRACT APPEALS

I. Mission Supporting Goals/Ongoing Responsibilities:

The goal of the Board of Contract Appeals is to provide to the fullest extent practicable, informal, expeditious, and inexpensive resolution of contract and financial assistance related disputes pursuant to the Contract Disputes Act of 1978, the Alternative Disputes Resolution Act and other authority.

Program Direction has been grouped into four categories:
Salary and Benefits provide funding for full-time permanent and other than full-time permanent employees, in the following classes: salary and wages, overtime pay, cash incentive awards, lump sum leave payments, buy out compensation, and payments to funds for the benefit of employees.

Travel funding for staff to conduct trials, typically at courthouses and other neutral sites and for employee training travel.

No support Services.

Other related expenses include funding for employee training and development ($1K), and funding to support the Working Capital Fund for printing and graphics ($5K).

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II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salary and Benefits	$ 750	$ 557	$ 0	$ 557	$ 566
Travel	7	6	0	6	6
Support Services	0	0	0	0	0
Other Related Expenses	6	1	5	6	6
Subtotal, Program Direction	$ 763	$ 564	$ 5	$ 569	$ 578
Prior Year Balances, Used	$ -131				
Full Time Equivalents	8	6		6	6
Average Cost/FTE	$ 79	$ 94		$ 95	$ 96
Adjustment	$ 131				
Budget Authority	$ 763	$ 564		$ 569	$ 578

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III. Performance Summary: Board of Contract Appeals

FY 1995 Measurable Performance Activities:

- Trial and Adjudication of Disputes: Tried and decided a wide range of important contract dispute appeals pursuant to the Contract Disputes Act of 1978, and financial assistance appeals pursuant to delegated Secretarial authority.
- Alternative Dispute Resolution Services: Established new alternative dispute resolution (ADR) service to complement Board's adjudicatory functions. Replaces ad hoc approach to ADR. Designated by Department as principal source of mediators for contract disputes. Published innovative 70-page ADR Handbook which includes model ADR agreements. Over 500 copies of Handbook requested by members of public. Conducted successful mediations.
- New Procedures Accelerating Case Processing: Increased use of facsimile in document filings and order issuance, saving as much as 10% in processing times. Full integration of ADR into adjudicatory processes.

III. Performance Summary: Board of Contract Appeals

- Rulemaking: Developed new rules now under review in Department prior to publication for comment. Rules are intended to facilitate public understanding of Board functions, authorities and procedures and simplify access to Board services. Once adopted they would consolidate and clarify Board authorities, cross-reference rules of procedure for various Board jurisdictions, state ADR policies and provide express enabling authority, implement the new higher dollar limits for Expedited and Accelerated cases as provided by the Federal Acquisition Streamlining Act, and lastly, eliminate several anachronistic rules.

FY 1996 Measurable Performance Activities:

- Complete the training program to qualify all judges to serve as mediators.
- Continue outreach activities intended to inform the general public, Departmental and contractor personnel, and attorneys of Board's services, including alternative dispute resolution.
- Continue maintenance of tight internal target dates for case completion.

FY 1997 Measurable Performance Activities:

- Maintain optimum balance between thoroughness of process, time and costs.
- Reduce financial and other costs to DOE and its contractors through cost effective proceedings.
- Improve outreach activities intended to inform the general public, DOE, contractor personnel, and attorneys of services.
- Continue maintenance of tight internal target dates for case completion.

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III. Performance Summary: Board of Contract Appeals

IV. Explanation of Funding Changes FY 1996 to FY 1997:

On a comparable basis, using Budget Authority, the increase of $ 9K in Personnel Compensation and Benefits reflects the full effect of the FY 1996 pay raise, the partial year effect of the FY 1997 pay raise, the furlough savings in FY 1996, and the restoration of awards and overtime; partially offset by other base salary adjustments.

V. Explanation of Average FTE Costs:
The average FTE cost increase of $1K/FTE is related to the personnel compensation and benefits increase discussed above.

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CONGRESSIONAL, PUBLIC, AND INTERGOVERNMENTAL AFFAIRS

PROGRAM MISSION

The mission of the Office of Congressional, Public, and Intergovernmental Affairs is to promote Departmental policies, programs and initiatives by facilitating the flow of information and advice to Congress, State, local, and Native American governments, and other Federal agencies (our "customers"); to create early customer involvement in the decision-making process; to coordinate Departmental activities and issues; to develop and implement legislative strategies; communicating DOE's missions and benefits to our customers; and building trust through the release of timely, responsive, factual information to the media, stakeholders, and the general public. Recognizing the Secretary's mandate that openness is essential to accountability and trust, this office works to provide substantial contributions to keeping our customers informed by continuously improving and developing partnerships with our constituent groups on a day-to-day basis. Public awareness concerning the preservation of our environment while encouraging economic growth is critical to our mission. The office maintains an aggressive outreach program directed at Departmental stakeholders to develop and preserve a positive reputation with congressional, public, and intergovernmental customers and to improve our promptness in responding to requests.

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GOALS

- Build DOE credibility and trust by developing and maintaining a positive relationship with customers.
- Provide value-added strategic advice to internal customers.
- Increase value of products and services through customer focus, quality management principles, and information management technology.
- Maximize resources and support employees to their full potential.
- Lead the implementation of the Communications and Trust Strategic Plan.
- Lead or participate in matrix management activities to accomplish the goals of the Department.

OBJECTIVES

- Learning customer needs, seek earlier participation, provide timely heads-up to appropriate officials, and respond promptly to customer requests and delivery on commitments.

- Principal coordinator in implementing the Department's legislative agenda, evaluate and assess how Congressional is meeting customers' needs, ensure that Congressional activities are handled in a smooth, timely, efficient and complete manner, create a standardized, practical and inclusive process to identify and manage situations requiring a quick response, ensure that intergovernmental and the public's concerns are represented in the Department's activities and integrate congressional, public, and intergovernmental activities through a closer working relationship with program and field office's to enhance communication and trust.

- Restructure and flatten organization, define specific roles, responsibilities, and relationships of individuals in organization and provide expertise on outreach activities through matrix teams within organization as well as with program offices and the field.

- Develop technology-based flexible management information system, expand system to meet customers' needs for information, and educate and inform internal and external customers on new systems.

PERFORMANCE MEASURES

Levels of performance measurements, being responsive and trustworthy, are based on customer satisfaction, leadership commitment, labor/management partnering, and employee involvement.

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CONGRESSIONAL, PUBLIC, AND INTERGOVERNMENTAL AFFAIRS

I. Mission Supporting Goals and Objectives:

The goal of the Office of Congressional, Public, and Intergovernmental Affairs is to promote Departmental policies, programs and initiatives by facilitating the flow of information and advice to Congress, State, local, and Native American governments, other Federal agencies, media, stakeholders, and the general public.

Program Direction has been grouped into four categories:
Salary and Benefits provide funding for full-time permanent and other than full-time permanent employees, in the following classes: salaries and wages, overtime pay, cash incentive awards, lump sum leave payments, Senior Executive Service and other performance awards, payments to funds for the benefit of employees, buyout compensation, and workmans compensation.

Travel provides funding for staff travel for site visits to facilities of interest to Congress; to arrange and lead all media events, to accompany the Secretary, Deputy Secretary, and Under Secretary at public appearances; to attend conferences and meetings with State and local governments, American Indian tribal officials; and meetings with consumer, business and community groups to convey DOE initiatives and policies; and travel associated with training.

Other Related Expenses provides funding for employee training and development, and funding for items included in the Working Capital Fund, for example, utilities, building operations and maintenance, postage, telephone service, printing and graphics, copying, and etc.

Program Support includes contractual support for **Public Affairs** and **Consumer Affairs**. Public Affairs provides funding for the delivery of DOE news releases to media bureaus; radio and television broadcasts, electronic newswire and clipping services from major media markets; newspaper delivery; video duplication; and transcription services for media events. Consumer Affairs includes funding for public service announcements and bimonthly distribution to 300 radio stations nationwide; DOE consumer and public liaison radio programs (approximately twelve five-minute programs) and reproduction and distribution to 103 radio stations; and the Consumer Resource Handbook printing and distribution costs.

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II. Funding Schedule:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salary and Benefits	$9,378	$8,051	$12	$8,063	$9,029
Travel	159	120	0	120	120
Support Services	0	0	0	0	0
Other Related Expenses	1,834	7	1,849	1,856	1,975
Subtotal, Program Direction	$11,371	$8,178	$1,861	$10,039	$11,124
Prior Year Balances Used	$-635			$200	
Full Time Equivalents	118	110		110	99
Average Cost Per FTE	$91	$74		$93	$112
Consumer Affairs	$46	$40		$40	$40
Public Affairs	$54	$50		$50	$65
Prior Year Balances Used	$5				
Adjustment	$630			$-200	
Budget Authority	$11,471	$8,268		$10,129	$11,229

III. Performance Summary:

FY 1995 Measurable Performance Activities:

In support of serving as an intermediary with Members of Congress, the news media, consumer groups and industry, the general public, and the States, staff resources:

--Assisted program offices in their preparation of lead testimony and accompanied senior Departmental officials to approximately 104 hearings;

III. Performance Summary: Congressional, Public, and Intergovernmental Affairs (Cont'd)

--Attended over 3,100 briefings and meetings and over 80 committee markups in performance of their liaison functions; and
--Responded to over 12,000 telephone and/or walk-in inquiries.
--Coordinated 120 Press Conferences and prepared over 100 press releases and numerous notes to editors and briefs.

- Researched, prepared, and/or reviewed:
  --250 Daily Reports and 52 Weekly Reports for senior Departmental officials providing detailed congressional/ intergovernmental/public affairs information on meetings, hearings, mark-ups, site visits and other major events;
  --700 Communications Plans announcing major policy and program announcements;
  --104 reports on Congressional hearings, coordination of 194 hearing statements, 1,800 pre- and post-hearing Questions and Answers; 149 inserts for the record, and 1,000 congressional letters relating to hearings;
  --2,544 contract and grant notifications for Members of Congress requiring over 8,000 congressional notifications;
  --5,700 notifications to Governors/Tribal leaders/American Indian Organizations/consumer groups and industry of major actions;
  --3,200 pieces of Congressional correspondence, developed with program offices on program/policy issues;
  --100 briefing books/papers regarding Congressional hearings and meetings,
  --200 invitations for meetings or appearances by the Secretary and other principal Departmental officers with intergovernmental or public liaison groups;
  --535 biographies developed for Members of Congress (including energy-related information, Committee assignments, energy and environment-related legislation sponsored and co-sponsored by Member(s), background information on Departmental facilities in Member's District/State, and major energy interests and concerns); and
  --175 State Briefing Papers prepared for Administration officials covering energy issues and concerns for the relevant State.

- In support of the Department's mission:
  --Worked with program offices to develop legislative approaches concerning the Department's budget and key legislation;
  --Conducted meetings on Indian Issues to implement the Department's American Indian Policy;
  --Coordinated efforts to encourage intergovernmental public interest group policy positions supportive of Administration policies and initiatives resulting in the adoption of over 10 resolutions supporting Departmental interests;
  --Provided general intergovernmental policy advice and support to Departmental program and operation offices through more than 2500 personal contacts and reviewed over 400 program proposals, concurrence and correspondence for intergovernmental impact;
  --Provided early warning to program officials on energy issues in the States, most of which dealt with environmental and waste management matters;
  --Reviewed/approved over 175 publications, exhibits and audiovisuals of Departmental activities;

III. Performance Summary: Congressional, Public, and Intergovernmental Affairs (Cont'd)

--Managed the daily newsclips function which compiled articles from 50 major newspapers, five regional papers, eight weekly magazines/journals and produced/distributed 716 copies of news, magazine, and regional clips;
--Responded to over 9,100 press inquiries;
--Prepared talking points for over 180 meetings for the Secretary's presentations;
--Assisted, advised, and/or prepared speeches, talking points, and presentations for Secretarial Officers.
--Co-sponsored the first interagency workshop and conference on crisis communications;
--Communicated guidance and coordination with public affairs offices at the field laboratories and facilities sharing communications problems, messages, and major announcements;
--Conducted the first special environmental management-focused press officer training plus risk communication training;
--Coordinated the development of the first multimedia presentation program/database that can be shared between sites; and
--Instituted an on-demand series of communications training sessions for Departmental officials likely to participate in news media interviews.

FY 1996 Measurable Performance Activities:

- Serve and establish a closer working relationship with the Congress, State, Local, and Native American governments, other Federal agencies, news media, stakeholders, and the general public to ensure they are kept apprised of the Department's mission of energy resources, national security, economic productivity, environmental quality, and science and technology.

- Communicate the Secretary's vision for the Department; including openness in providing information; internal communication; build credibility with customers; pursue innovative partnerships; conduct major presentations to stakeholders and the media; implement internal communication strategy, and communications and trust strategic plan.

- Streamline our resources and continue to re-engineer and utilize team matrixes to achieve optimal dissemination of information as well as coordination with Program and Field offices.

FY 1997 Measurable Performance Activities:

- Serve and work with our customers to ensure they are kept apprised of the Department's critical mission. Also, communicate the Secretary's vision for the Department.

- Continue to re-engineer and utilize team matrixes to achieve optimal utilization of staff to provide for dissemination of information as well as coordination with Program and Field offices.

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IV. Explanation of Funding Changes FY, CY, to FY BY:

On a comparable basis, using Budget Authority, the increase of $966K in Personnel Compensation and Benefits reflects the full effect of the FY 1996 pay raise, the partial year effect of the FY 1997 pay raise, furlough savings in FY 1996, restoration of awards and overtime, the use of prior year balances in FY 1996 and buyout costs for FY 1997, partially offset by a decrease of 11 FTE's.

On a comparable basis, using Budget Authority, the increase of $119K in Other Related Expenses reflects inflation for items included in the Working Capital Fund.

The increase of the $15K in the Public Affairs Contractual Support reflects the FY 1995 operating level.

V. Explanation of Average FTE Costs:

The average FTE cost increase of $19K/FTE is related to the Personnel Compensation and Other Related Expense increases discussed above.

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GENERAL COUNSEL

PROGRAM MISSION

The Office of General Counsel is responsible for providing comprehensive legal services to the Secretary and the Department. These services include legal counsel with respect to every program and function of the Department, except those relating to the Federal Energy Regulatory Commission and Environment, Safety, and Health's administrative enforcement activities related to Nuclear Safety. General Counsel assures that the Department operates in compliance with applicable laws and its existence is mandated by Public Law 95-91,Section 202(b).

The GOALS of the Office of General Counsel are to:

- Anticipate the needs of the Secretary and the Department and to provide timely, sound, responsive, and innovative legal counsel and services.

- Advance the interests of the Secretary and the Department through negotiation, dispute resolution, rulemaking, legislation, and, when necessary, litigation.

The OBJECTIVE related to these goals is to:

Provide Legal Support towards the Secretary's and the Department's missions of:

- Protecting National Security and Reducing the Nuclear Danger

- Enhancing Energy Security

- Environmental Cleanup and Stewardship

- Advancing Frontiers of Science and Technology

MAJOR ACTIVITIES:

- General Counsel is responsible for review of proposed Departmental actions and the defense of those matters through both judicial and administrative litigation in federal and state courts, at the trial and appellate levels. Because of the diversity and magnitude of the

Department's activities, a single office within General Counsel may be responsible for providing legal services with respect to as many as 50 different statutes, and the legal expertise required may encompass the entire range of the law, from issues of constitutional proportions to personnel law matters affecting individual employees.

- General Counsel is responsible for enforcing the provisions of the Emergency Petroleum Allocation Act of 1973.

- General Counsel is responsible for conducting several programs of Department-wide application. The Intellectual Property program manages and protects the Department's wealth of intellectual property, whether it be in the form of a patent, trademark, or copyright, that results from the billions of dollars invested in the Department's research and development activities. The Standards of Conduct program implements the ethical standards requirements of the Department of Energy Organization Act and other statutes and regulations with which current and former employees must comply.

- General Counsel is also involved in the development and/or implementation of policies and procedures in the areas of rulemaking and alternative dispute resolution.

- General Counsel assists other departmental elements by providing legal support to their programs, such as the drafting and review of proposed legislation.

PERFORMANCE MEASURES:

- The Intellectual Property Program expects to have processed 5,000 and 7,000 - 7,500 actions associated with patents, invention disclosures, and waiver requests for Fiscal Years 1996 and 1997 respectively , dependent upon future funding.

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GENERAL COUNSEL

I. Mission Supporting Goals/Ongoing Responsibilities:

The goals of the Office of General Counsel are to anticipate the needs of the Secretary and the Department and to provide timely, sound, responsive, and innovative legal counsel and services; and advance the interests of the Secretary and the Department through negotiation, dispute resolution, rulemaking, legislation, and when necessary, litigation.

Program Direction has been grouped into four categories:
Salary and Benefits provide funding for full-time permanent and other than full-time permanent employees, in the following classes: salaries and wages, overtime pay, cash incentive awards, lump sum leave payments, Senior Executive Service and other performance awards, payments to funds for the benefit of employees, buy out compensation, and workmans compensation.

Travel provides funding for attorneys to attend hearings, court trials, proceedings, and to take depositions at all DOE sites. Travel also provides funding for conference attendance, and employee training travel.

Support Services finance technical and management support services for this organization including: maintenance of the DOE law library; patent attorneys to process patent waivers, licenses, and clearances; and consulting services to receive, process and track 5,000 inventions and patent documents.

Other related expenses provides funding for DOE law library acquisitions, employee training and development, and funding for items included in the working capital fund, for example, utilities, building operations, and maintenance, supplies, telephone service, etc.

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III. Performance Summary: General Counsel

II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salary and Benefits	$ 13,879	$ 14,820	$ 50	$ 14,870	$ 16,434
Travel	154	136	0	136	136
Support Services	1,350	1,035	0	1,035	1,255
Other Related Expenses	2,782	315	2,521	2,836	3,012
Subtotal, Program Direction	$ 18,165	$ 16,306	$ 2,571	$ 18,877	$ 20,837
Prior Year Balances, Used	147			300	
Full Time Equivalents	163	172		172	178
Average Cost/FTE	$ 112	$ 95		$ 112	$ 117
Adjustment	$ -147			-300	
Budget Authority	$ 18,165	$ 16,306		$ 18,877	$ 20,837

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III. Performance Summary:

FY 1995 Measurable Performance Activities:

- Continued to ensure that effective and timely legal services, counsel, and support are provided to the appropriate Departmental elements and to represent the Department as counsel before Federal, State, and other governmental agencies and courts.
- Negotiated accords with approximately 80 companies participating in the Department's Climate Challenge Program.

- The Intellectual Property Program processed 7,000 - 7,500 actions associated with patents, invention disclosures, and waiver requests.

FY 1996 Measurable Performance Activities:

- Continue to ensure that effective and timely legal services, counsel, and support are provided to the appropriate Departmental elements and to represent the Department as counsel before Federal, State, and other governmental agencies and courts.

- The Intellectual Property Program expects to process 5,000 actions associated with patents, invention disclosures, and waiver requests.

FY 1997 Measurable Performance Activities:

- Continue to ensure that effective and timely legal services, counsel, and support are provided to the appropriate Departmental elements and to represent the Department as counsel before Federal, State, and other governmental agencies and courts.

- The Intellectual Property Program expects to process 7,000 - 7,500 actions associated with patents, invention disclosures, and waiver requests.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

On a comparable basis, using Budget Authority, the increase of $1.6M in Personnel Compensation and Benefits reflects an increase of 6 FTEs plus the full effect of the FY 1996 pay raise, the partial year effect of the FY 1997 pay raise, furlough savings in FY 1996, restoration of awards and overtime, and the use of prior year balances in FY 1996.

Support Services increase of $220K reflects the funding necessary to support the Department's patent activities and to reduce the current backlog of patents, invention disclosures, and waiver requests .

On a comparable basis, using Budget Authority, the increase of $176K in Other Related Expenses reflects inflation for items included in the Working Capital Fund.

V. Explanation of Average FTE Costs:

The average FTE cost increase of $5K/FTE is related to the Personnel Compensation and Benefits, Support Services, and Other Related Expenses increases discussed above.

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POLICY

PROGRAM MISSION

The Policy Office (PO) provides leadership and support to the Secretary and the Department for establishing and improving policies and programs to meet DOE's mission in the areas of energy resources, science and technology, environmental quality, national security, and economic productivity. PO accomplishes these functions through analyses of national and international issues, coordination and implementation of cross-cutting departmental program activities, and guidance and assistance for strategic planning, budget formulation, and program evaluation.

The Goals of the Policy Office are to:

- On behalf of the Secretary of Energy, develop effective and efficient governmental policies and priorities, consistent with the Departmental mission and vision.
- Ensure effective and consistent implementation and communication of Administration and Departmental policies and priorities.
- Ensure attention to energy needs and policy perspectives as decisions with significant energy implications are considered by other Departments and agencies.
- Effectively use international community to advance energy, environmental, and non-proliferation policies in international agreements and foreign nations that support U.S. policy goals.
- Provide for the effective implementation of all Policy Office programs.

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The specific roles unique to the Policy Office that will enable the successful accomplishment of the Department of Energy's mission and goals are:

Policy Developer: The Policy Office identifies and analyzes policy issues, helps define long-term goals, objectives, and priorities, and mobilizes appropriate program offices.

Policy Advisor: The Policy Office provides the Secretary, Deputy Secretary and the Under Secretary independent analysis and program assessments. PO has no vested or parochial interests in specific DOE programs. During the decision-making process, the Secretary is assured of impartial and unbiased policy advice.

Policy Coordinator: PO is the central DOE organization that develops policy initiatives and strategies on issues that cut across more than one program area. PO prevents "stovepipe" policies by facilitating the development of an integrated policy approach across all of the Department's functions that are aligned with core national goals and objectives. These ongoing responsibilities also include coordination of the Department's international activities.

Policy Communicator: PO is the communication link between DOE and its stakeholders. PO ensures that the views of the White House, Congress, public and private sector organizations, and foreign countries are addressed in the policy making process. PO is the Department representative on many domestic and international policy initiatives and provides information on departmental, national, and international policies, strategies, and trends.

Policy Oversight: PO ensures that Secretarial policies and priorities are implemented throughout the development of departmental strategic plans, formulation of the budget, and the evaluation of program performance against Secretarial commitments.

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OFFICE OF POLICY

I. Mission Supporting Goals/Ongoing Responsibilities

In this era of radically shifting priorities and sharply reducing budgets, the Secretary and the Department increasingly rely on the Policy Office to establish clear goals, analyze policy impacts, mobilize resources, and launch new initiatives to reduce the cost and enhance the effectiveness of our programs. The goals of the Policy Office are to: develop policies based on sound analysis that support the Department's vision and fulfill the Department's missions; provide accurate and unbiased analysis of existing and prospective policies in the areas of energy, environment, science and technology and national security; ensure attention to energy needs and perspectives as decisions with significant energy implications are considered by other departments and agencies; ensure effective communication of Administration and Departmental policies, priorities, objectives, and measurements; and to use the international community to advance energy, environmental, and non-proliferation policies in international agreements and foreign nations that support U.S. policy goals.

Program Direction has been grouped into four categories:
Salary and Benefits provide funding for full-time permanent and other than full-time permanent employees, in the following classes: salaries and wages, overtime pay, cash incentive awards, lump sum leave payments, Senior Executive Service and other performance awards, payments to funds for the benefit of employees, workmans compensation, and buy out compensation.

Travel provides funding for staff travel to DOE sites for strategic planning and oversight purposes; to attend energy policy development meetings nationwide; and employee training travel. International travel is required in the development and implementation of international energy/environmental policy; matters concerning international energy/environmental related negotiations, to attend conferences and meetings; and to represent the Department as members of international energy and environmental organizations.

Other Related Expenses includes funding for activities such as: reimbursement to the Department of State for DOE overseas offices in Tokyo and Moscow; embassy related services for DOE delegations, such as interpreters, facilities and motor pool services; includes translation services for meetings at DOE and with foreign governments, acquisition and maintenance of ADP equipment, systems support for the Foreign Visits and Assignments and the Foreign Travel and Tracking Systems, employee training; and funding for items included in the Working Capital Fund, for example, utilities, building operations, and maintenance, postage, printing and graphics, supplies, telephone services, etc.

Program Support includes **Policy Analysis, and Systems Studies** and **Environmental Policy Studies.** These accounts are used to generate information critical to the policy mission. The source of this critical information is from outside sources, such as the National Laboratories, academia, and specialized technical contractors. Topics addressed include evaluation of proposed regulations potentially affecting the energy

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system, modeling to assess the economic and energy impacts of climate change policy, and analysis of alternative fuels options. These studies, which tap expertise of leading national experts, leverage the effectiveness of the Office in internal and interagency policy development processes.

II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salary and Benefits	$ 15,108	$ 14,625	$ 47	$ 14,672	$ 15,843
Travel	671	537	0	537	537
Support Services	0	0	0	0	0
Other Related Expenses	3,225	533	2,612	3,145	3,821
Subtotal, Program Direction	$ 19,004	$ 15,695	$ 2,659	$ 18,354	$ 20,201
Prior Year Balances, Used	$ 1,506			$ 300	
Full Time Equivalents	196	183		183	172
Average Cost/FTE	$ 105	$ 86		$ 102	$ 117
Policy Analysis,&Systems Studies	$ 3,505	$ 2,900		$ 2,900	$ 3,493
Environmental Policy Studies	$ 6,070	$ 4,000		$ 4,000	$ 4,928
Prior Year Balances, Used	$ 112				
Adjustment	$-1,618			$ -300	
Budget Authority	$28,579	$ 22,595		$ 25,254	$ 28,622

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III. Performance Summary:

FY1995 Measurable Performance Activities

Examples of major measurable performance activities achieved in FY1995 include:

- Provided analysis, tracking, and forecasting of domestic and international energy use and greenhouse gas emissions trends that highlighted the significant challenges of emissions reduction and the need to adopt realistic, flexible, and cost-effective approaches.
- Avoided disruption in fuel markets and assured minimal increases in the consumer cost of cleaner gasoline through interagency interventions that resulted in a more streamlined and cost-effective reformulated gasoline program under the Clean Air Act.
- Completed study of economic, energy markets, and environmental effects of lifting the ban on exports of oil from the Alaska North Slope, providing a basis for a decision to lift the ban.
- Provided analysis of energy-related regulatory policies of EPA and other agencies on issues such as nitrous oxide emissions from power plants and the potential effects of mercury emissions, providing a sound scientific basis for interagency discussions of pending decisions.
- Established an inventory of precious metals within the DOE complex, and designed a program for sales of excess materials that will directly contribute to deficit reduction over the next 5 years.
- Lead the Department's privatization team that is charged with streamlining operations by spinning off functions that are properly and cost-effectively handled in the private sector.
- Co-lead the interagency Joint Implementation Initiative program that, in cooperation with U.S. industry, initiated eight pilot projects to prepare the way for U.S. access to low-cost greenhouse gas emissions abatement opportunities and energy technology markets in developing countries.

- Provided analysis and support for the Galvin Task Force on the Future of the National Laboratories and the Yergin Task Force on Strategic Energy Research and Development. These two independent, outside reviews provide important guidance on options for restructuring and streamlining DOE.

- Issued a rule governing participation of foreign companies in U.S. sponsored research and development programs, making their participation contingent on fair and recipical treatment of U.S. concerns by foreign governments.

- Coordinated energy activities under the Gore-Chernomyrdin commission, addressing areas of vital U.S. interest including initiatives to improve the safety of Russia's nuclear power plants, promote regulatory policy changes in Russia to increase market opportunities for U.S. energy technology and production companies, and achieve a shutdown of Russia's plutonium production by 2000.

- Coordinated missions on energy trade, investment, and sustainable development to India, Pakistan, African nations, Mexico, and China resulting in significant U.S. private sector investment.

- Lead dialogue with South Africa on energy regulatory reform, improving the institutional capability of this strategic country to meet the challenge of providing modern energy systems to all its citizens while expanding opportunities for U.S. vendors.

- Implemented the Government Performance and Results Act through development of the DOE Performance Agreement signed by the President and the Secretary of Energy.

- Organized and executed, in cooperation with state utility regulators, major conferences exploring the interface between State and federal regulatory responsibilities in the areas of electricity and natural gas, as well as opportunities for increased coordination of restructuring efforts across levels of government.

- Issued a National Energy Policy Plan that outlines the Administration's market-oriented approach to energy policy.

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FY1996 Measurable Performance Activities:

Examples of major measurable performance activities for FY1996 include:

- Initiate sales of excess precious metals, generating $15 million in revenues that will reduce the deficit.
- Achieved legislation to permit exports of Alaska North Slope crude oil based on previous analytic efforts.
- Continue analysis and interagency dialogue on key regulatory issues with substantial energy implications, including new EPA ambient air quality standards for smog and particulates, regional haze regulations, and Superfund provisions affecting refineries.
- Complete cost-benefit analysis of possible transition to a market involving significant use of alternative fuels for vehicles.
- Develop and publish analysis of cost-savings available from incorporating flexibility in the location and timing of emissions reductions commitments now under consideration by the U.S. and other governments.
- Implement recently-issued OMB guidance regarding the use of cost-benefit analysis as a part of regulatory impact assessments.
- Develop, in conjunction with industry experts, assessment of the impact of new greenhouse gas mitigation commitments on energy-intensive industries in the U.S. to help inform U.S. negotiating positions.
- Coordinate a dialogue with industry, financial institutions, and foreign interests, regarding innovative mechanisms for financing international investment in energy efficiency.
- Complete the Country Studies program, a successful multi-agency program that increases developing countries' awareness of the need for their active participation in any effective policy to address climate change.
- Coordinate U.S.- Japan bilateral energy consultations to gain access by U.S. firms to Japan's electricity sector.

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- Continued implementation of the Government Performance and Results Act, including publication of the FY1996 Performance Agreement and the issuance of the DOE-wide Strategic Management System.

- Implement recommendations of independent outside reviews of the National Laboratory System (Galvin Task Force) and energy R&D activities (Yergin Task Force), including initiation of peer review and prioritization programs for R&D activities

FY1997 Measurable Performance Activities

Examples of major measurable performance activities projected for FY1997 include:

- Continue asset sales and privatization initiatives to reduce the deficit and streamline DOE operations.

- Implement the Domestic Gas and Oil Initiative to simplify regulatory hurdles and remove disincentives to the domestic production of energy.

- Analyze and, if necessary, intervene in emerging fuel market issues, particularly the implementation of the "complex model" for reformulated gasoline, to avoid unnecessary cost and market disruptions while achieving environmental objectives.

- Ensure that DOE efficiency standards, alternative fuels programs, and other regulatory policies maximize net energy, economic, and environmental benefits to consumers.

- Develop U.S. positions for international protocols regarding nitrous oxides, persistent organic pollutants, and heavy metals that fall within current U.S. requirements and emphasize performance-based rather than technology-based approaches.

- Assure that new greenhouse gas reduction commitments scheduled for adoption under the Climate Convention in FY1997 are based on sound analysis, a realistic appraisal of U.S. energy needs, and up-to-date information on global energy and emissions trends.

- Assess actual effectiveness of voluntary programs included in the Administration's Climate Change Action Plan.

- Implement the Summit of the Americas Partnership for Sustainable Energy Use, while continuing to pursue additional missions and agreements in energy technology trade to expand market opportunities for U.S. exports.

- Expand and refine Department-wide prioritization of energy R&D, incorporating R&D portfolio analysis with strategic planning and budgeting to maximize cost-effectiveness.

- Develop FY1997 Performance Agreement and implement the DOE Strategic Management System.

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- Revise the Department's Strategic Plan.

IV. Explanation of Funding Changes FY 96 to FY 97:

On a comparable basis, using Budget Authority, the increase of $1.17M in Personnel Compensation and Benefits reflects the full effect of the FY 1996 pay raise, the partial year effect of the FY 1997 pay raise, furlough savings in FY 1996, restoration of awards and overtime, funding for buy outs, and the use of prior year balances in FY 1996; partially offset by a decrease of 11 FTEs.

On a comparable basis, using Budget Authority, the increase of $676K in Other Related Expenses reflects the use of prior year balances in FY 1996 and inflation for items included in the Working Capital Fund.

The increases of $593K in Policy Analysis, and Systems Studies and $928K in Environmental Policy Studies reflect plans for the increased use of expertise for national laboratories and the private sector to more effectively carry out assigned functions with reduced staffing levels. Specific requirements are driven by the planned regulatory activities of other agencies and the previously established schedule for negotiating new climate change commitments, both of which have significant energy implications, and the requirement to revise the DOE Strategic Plan in FY 1997. While this request reflects a modest increase from approved FY 1996 funding levels, it is below both the FY 1996 request and the actual FY 1995 funding level.

V. Explanation of Average FTE Costs:

The average FTE cost increase of $15/FTE is related to the Personnel Compensation and Other Related Expense increases discussed above.

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ECONOMIC IMPACT AND DIVERSITY

PROGRAM MISSION

The office devises and leads diversity strategies that ensure full participation of all employees, and creates full partnerships with small and underutilized businesses and minority educational institutions.

The GOALS of the ED program are to:

- Become a recognized leader among Federal agencies in managing diversity as a strategic imperative.
- Ensure equitable opportunity for small, minority, and women-owned business to compete for contracts and subcontracts.
- Promote collaborative efforts with educational institutions, federal agencies, and energy industry organizations to establish state-of-the-art research and development centers of excellence at the universities.
- Conduct on-going research programs to determine the effects (including the socioeconomic and environmental effects) of national energy programs, policies, and regulations of the Department on minorities.

The OBJECTIVES related to these goals are to:

- CONTRIBUTE TO OUR NATION'S ENERGY SECURITY AND INDUSTRIAL COMPETITIVENESS - Design initiatives for scientific training and research programs in the mathematics and science disciplines; support the development of the research and education infrastructure at Historically Black Colleges and Universities (HBCUs) and minority educational institutions; establish synergistic linkages with industry and the national energy laboratories which will increase the technical capabilities of the labor force in the energy industry and improve the current critical deficient levels.
- CONTRIBUTE TO THE ENHANCEMENT OF MINORITY EDUCATION - Supports the research and education infrastructure at educational institutions; invest in human resources at all levels of the educational curriculum through improved scientific training and research experiences in mathematics, science, and engineering for both teachers and students; utilize the resources of Federal and private sector laboratories and energy technology industries.

- PROMOTE THE GROWTH OF BUSINESS ENTERPRISES - Support economic incentives for small, disadvantaged, and women-owned businesses through focused linkages with government-funded programs, such as the Small Business Administration and the Small Business Innovative Research Programs, and to facilitate long-term investments.

PERFORMANCE MEASURES:

- Fairness and equity in the contracting process.
- Shared vision of diversity throughout the Department by assuring work force diversity.
- Increase in the Department's support of Historically Black Colleges and Universities, to improve institutional infrastructure,support scientific research, and provide state-of-the-art research equipment as part of the overall support for minority scientists, engineers, and educational institutions.
- Increase in the Department's use of small, minority, and women-owned business by the laboratories, facilities, field organizations, and headquarters.
- Increase in the Department's ability by 30% to reduce the environmental and human health risks to affected communities caused by the Department's facilities and operations.
- Increase the contribution of the research program to the National Energy Modeling System and the Annual Energy Outlook, to incorporate equity and socioeconomic characteristics in these departmental analyses.

ECONOMIC IMPACT & DIVERSITY

I. Mission Supporting Goals/Ongoing Responsibilities:

The goals of the office of Economic Impact and Diversity are to become a recognized leader among Federal agencies in managing diversity as a strategic imperative, to ensure equitable opportunity for small, minority, and women-owned businesses to compete for contracts and subcontracts, to promote collaborative efforts with educational institutions, federal agencies, and energy industry organizations to establish high technology research and development centers at the universities, and to conduct on-going research programs to determine the effects (including the socioeconomic and environmental effects) of national energy programs, policies, and regulations of the Department on minorities.

Program Direction has been grouped into four categories:
Salary and Benefits provide funding for full-time permanent and other than full-time permanent employees, in the following classes: salaries and wages, overtime pay, cash incentive awards, lump sum leave payments, Senior Executive Service and other performance awards, payments to funds for the benefit of employees, workmans compensation, and buyout compensation.

Travel provides funding to perform site visits regarding socioeconomic research and analysis and minority educational institution assistance activities, to conduct Federal employee complaint investigations, to meet with minority communities and institutions, to provide support on Secretarial trips, to sponsor the small and disadvantaged business conference, and for employee training travel.

Other Related Expenses provides funding for special emphasis programs, investigations associated with processing civil rights complaints, services related to small and disadvantaged business activities/conferences, employee training and development, and funding for items included in the working capital fund, for example, utilities, building operations, and maintenance, supplies, telephone services, printing and graphics, etc.

Program Support provides funding for development of programs addressing impacts of energy policies, programs, regulations, legislation, and other Departmental actions on minorities, minority educational institutions, minority businesses, and minority communities. Major activities include: providing nationwide assistance workshops and other outreach assistance activities to serve as an incentive for minority businesses to participate in energy activities; supporting minority education institutions by providing student stipends for science and technology disciplines; funding the enhancement and maintenance of a database of energy programs available to minority educational institutions, businesses, and contractors; funding the enhancement and maintenance of the Socioeconomic Energy Research and Analysis Program (SERAP) database (assesses the impact of energy policy on energy consumption patterns); and providing financial assistance by reimbursing financial institutions

for their program support costs associated with administering funds (low interest loans) to minority entrepreneurs (note, funds administered are obtained from the DOE Petroleum Violation Escrow account).

II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Salary and Benefits	$ 4,034	$ 3,552	$ 23	$ 3,575	$ 4,012
Travel	114	96	0	96	91
Support Services	0	0	0	0	0
Other Related Expenses	777	136	557	693	733
Subtotal, Program Direction	$ 4,925	$ 3,784	$ 580	$ 4,364	$ 4,836
Prior Year Balances, Used	$ -240			$ 636	
Full Time Equivalents	51	51		51	49
Average Cost/FTE	$ 92	$ 74		$ 98	$ 99
Minority and Economic Impact	$ 3,095	$ 2,900		$ 2,900	$ 2,900
Prior Year Balances, Used	$ 372				
Adjustment	$ -132	$ -54		$ -690	
Budget Authority	$ 8,020	$ 6,630		$ 7,210	$ 7,736

III. Performance Summary:

FY 1995 Measurable Performance Activities:

- Provided $50 million to Historically Black Colleges and Universities in FY 1995.

III. Performance Summary: Economic Impact and Diversity (Cont'd)

- Increased the number of major program element participants to include 2 major partnerships with Nuclear Energy and 1 major partnership with Environmental Health.

- Supported new innovative cooperative education and employment programs at minority education institutions to diversify student employment at the Department of Energy headquarters and field facilities.

- Provided support for new chairs of excellence in science and technology related disciplines at additional Historically Black Colleges and Universities, and for the first time, an Hispanic serving institution.

- Increased the dispersion of funding support to include first time recipients at small institutions, and additional private and public institutions.

- Expanded the Minority Energy Assessment Model (MEAM) framework to include a broader spectrum of household expenditure categories. Eventually, the larger number of consumption categories will help to measure the indirect impacts of energy policy and incorporate equity factors into the National Energy Modeling System and policy decision making.

- Initiated implementation of the Department's Environmental Justice Strategy. On a nationwide level: made presentations; held meetings, hearings, and conferences; lead task forces and interagency working groups; and performed outreach and educational activities regarding the proposed strategies; and drafted guidance for specific methodologies, analyses, impact and risk assessments. Focused actions resulted in eliminating urgent risks, protecting human health, and improving the quality of the environment for communities impacted by the department's sites and facilities.

- Developed segments of the Distributive Impact Assessment Model (DIAM). DIAM will be used to quantitatively determine the impact of policies, programs, and other activities on: minority consumption and expenditure patterns, and employment and income. This will provide DOE with a capability to explicitly assess the potential impact of energy policy on minority economic welfare through its effect on consumption, employment, and income.

- Developed a Mentor-Protege Pilot Initiative program designed to encourage DOE management and operating contractors, environmental restoration management contractors, and prime contractors to assist small disadvantaged and women-owned businesses, and 8(a) firms in developing their business and technical capabilities and promote wider participation in departmental acquisition opportunities.

III. Performance Summary: Economic Impact and Diversity (Cont'd)

- Consorted with the Hispanic Radio Network to provide assistance and facilitate the compilation and dissemination of energy information to the U.S. Hispanic speaking population; the Hispanic Association of Colleges and Universities to provide high school math/science curriculum enhancement to motivated students in technical fields; the National Image to hold workshops encouraging Hispanic youths to pursue energy-related careers; the Argonne National Laboratory to implement a summer program for visiting Hispanic science students; the Society of Hispanic Professional Engineers to hold regional college competitions; and facilitated with the Mexican American State Legislators Policy Institute to establish a database for use and participation by Hispanic institutions and communities.

- Continued management and technical support for the Bank Deposit Program maintaining the goal level of $200 million.

- 154 EEO complaint cases were closed; 56 were dismissed; 18 were withdrawn; 35 settled; 45 were subject to final decision (with 3 findings of discrimination and 42 with no findings of discrimination).

- EEO counseling program processed approximately 101 counseling requests and resolved 23.

- EEO investigations conducted 112 cases with support service contractors. Initiated, monitored and reviewed support service contractors case reports.

- Partnered with other agencies in establishing a Headquarter's EEO Mediation program.

- Carried out various affirmative actions, included are developing and monitoring affirmative action plans for minorities, women, and persons with disabilities; monitoring contractor and grantee compliance guidelines. Conducted training for EEO managers/supervisors and will review the EEO Module for inclusion of diversity related content.

- At field offices, conducted routine civil rights technical assistance program review of Federal Assisted programs.

- Completed 82 pre-award civil rights reviews on applicants of DOE financial assistance; issued findings of no discrimination; prepared issue papers; provided information and technical assistance from various requestors; participated with other agencies in examining diverse affirmative action materials and resolutions.

- Conducted 11 Special Emphasis program events, promoted cultural awareness, advantages of multi-cultural work force through the development, implementation, and evaluation of programs and practices that encourage diversity throughout the agency.

III. Performance Summary: Economic Impact and Diversity (Cont'd)

- Conducted, sponsored and implemented 12 various activities in promoting the advantages of a multi-cultural and diverse work force.

FY 1996 Measurable Performance Activities:

Goal 1: Partner with the Community

- Partner with the public, and especially the private sector to leverage DOE capabilities in support of minority business communities.
- Achieve environmental justice and accountability for improved environmental regulations and legislation.
- Improve the Bank Deposit Financial Assistance program by linking deposits to identified minority business opportunities
- Provide educational outreach in diverse communities.
- Develop analytical and data tools to assess the distributive effects of policies, programs, and activities associated with DOE's five business lines; industrial competitiveness, energy resources, science and technology, national security, and environmental quality; and conducted a workshop to disseminate the information and methods to our stakeholders.

Goal 2: Partner with Minority Educational Institutions

- Facilitate collaborative research and development efforts between educational institutions and the Department's national laboratories by sharing facilities and human resources.
- Support participation of minority educational institutions in "cutting edge" science and technology research and development.
- Reduce barriers by streamlining processes for technology transfer and facilitating the rapid commercialization of technology advances.
- Provide developmental funds for cooperative programs which encourage under represented students to pursue science, engineering and technology careers.

III. Performance Summary: Economic Impact and Diversity (Cont'd)

- o Develop strategies to fuse the education and training missions of the universities with the needs of the energy industry and the basic research need of our national laboratories.

- o Develop and support infrastructure at universities to enhance physical and laboratory facilities, scientific instrumentation, research and library holdings.

Goal 3: Enhance Partnerships with Small, Minority and Women-Owned Businesses

- o Review all procurement requests valued in excess of $3 million to insure maximum opportunities for minority business enterprises. Ensure equitable opportunity to compete for subcontracts.

- o Provide technology transfer opportunities.

- o Implement mentor-protege initiative.

- o Increase access of minority entrepreneurs to technologies and scientific expertise found in Department's laboratories and facilities.

- o Maximize opportunities in environmental and energy efficiency and renewable areas.

Goal 4: Strengthen Partnerships with Employees

- o Establish shared values throughout the Department in support of our vision of diversity. Integrate diversity into the Department's total quality management initiatives.

- o Continue Diversity Council initiatives and training. Partner with the Office of Personnel to (1) Incorporate diversity goals into performance reviews and reward systems, (2) Ensure career development and training opportunities are utilized to support diversity goals, (3) Integrate work force diversity goals with operational and organizational activities.

FY 1997 Measurable Performance Activities:

Goal 1: Partner with the Community

- o Achieve environmental justice and accountability for improved environmental regulations and legislation.

III. Performance Summary: Economic Impact and Diversity (Cont'd)

- Partner with the public, and especially the private sector to leverage DOE capabilities in support of minority business communities.
- Partner with Hispanic community leaders.
- Provide educational outreach in diverse communities.
- Develop analytical and data tools to assess the distributive effects of policies, programs, and activities associated with DOE's five business lines; industrial competitiveness, energy resources, science and technology, national security, environmental quality; and conducted a workshop to disseminate the information and methods to our stakeholders.

Goal 2: Partner with Minority Educational Institutions

- Facilitate collaborative research and development efforts between educational institutions and the Department's national laboratories by sharing facilities and human resources.
- Support participation of minority educational institutions in "cutting edge" science and technology research and development.
- Reduce barriers by streamlining processes for technology transfer and facilitating the rapid commercialization of technology advances.
- Provide developmental funds for cooperative programs which encourage under represented students to pursue science, engineering and technology careers.
- Develop strategies to fuse the education and training missions of the universities with the needs of the energy industry and the basic research need of our national laboratories.
- Develop and support infrastructure at universities to enhance physical and laboratory facilities, scientific instrumentation, research and library holdings.

Goal 3: Enhance Partnerships with Small, Minority and Women-Owned Businesses

- Review 8(a) competitive procurement awards exceeding the $3 million level to insure maximum opportunities for minority business enterprises. Ensure equitable opportunity to compete for subcontracts.

III. Performance Summary: Economic Impact and Diversity (Cont'd)

- o Provide technology transfer opportunities.
- o Implement mentor-protege initiative.
- o Increase access of minority entrepreneurs to technologies and scientific expertise found in Department's laboratories and facilities.
- o Maximize opportunities in environmental and energy efficiency and renewable areas.

Goal 4: Strengthen Partnerships with Employees

- o Establish shared values throughout the Department in support of our vision of diversity. Integrate diversity into the Department's total quality management initiatives.
- o Continue Diversity Council initiatives and training. Partner with the Office of Personnel to (1) Incorporate diversity goals into performance reviews and reward systems, (2) Ensure career development and training opportunities are utilized to support diversity goals, (3) Integrate work force diversity goals with operational and organizational activities.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

On a comparable basis, using Budget Authority, the increase of $437K in Personnel Compensation and Benefits reflects the full effect of the FY 1996 pay raise, the partial year effect of the FY 1997 pay raise, furlough savings in FY 1996, restoration of awards and overtime, and the use of prior year balances in FY 1996; partially offset by a decrease of 2 FTEs.

The decrease of $5K in travel is in compliance with the president's administrative savings initiative.

On a comparable basis, using Budget Authority, the increase of $40K in Other Related Expenses reflects inflation for items included in the Working Capital Fund and the use of prior year balances in FY 1996.

V. Explanation of Average FTE Costs:

The average FTE cost increase of $1K/FTE is related to the Personnel Compensation and Other Related Expense increases discussed above.

COST OF WORK FOR OTHERS

I. Mission Supporting Goals/Ongoing Responsibilities:

The Cost of Work for Others (CWO) program provides finding to the Department of Energy's (DOE) multi-purpose field offices and national laboratories to finance the cost of products and services requested by non-DOE users, both foreign and domestic. The products and services provided by the Department under this program generally are not available from alternate sources and 1) are a revenue program which results from a budgeted mission of the Department; or, 2) are reimbursable work for non-federal entities where the sponsor is precluded by law from providing advance funding. The costs of the Cost of Work for Others program are offset by revenues received from the sale of products and services to our customers.

The goals for this program are continued access to the department's laboratory complex and availability of by-products for sale to these non-federal customers. The CWO program satisfies the needs of our non-federal customers. For this reason, performance evaluation for this work is the responsibility of our customers. The success of this program is indicated by the steady stream of business from the targeted groups.

II. Funding Table:

Total, Revenues Associated	FY 1995	FY 1996	FY 1997	$ Change	% Change
Products Sold:					
Oakland	$ 0	$ 0	$ 0	$ 0	0
Savannah River	3,500	3,000	3,000	0	0
Subtotal, Products Sold	3,500	3,000	3,000	0	0

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Services Performed:					
Albuquerque	1,700	2,000	2,000	0	0
Argonne	50	265	1,295	1,030	388.7%
Brookhaven	0	1,150	1,662	512	44.5%
Chicago	100	150	100	-50	-33.3%
Idaho	1,255	281	281	0	0
Lawrence Berkeley	3,846	1,619	6,000	4,381	270.6%
Lawrence Livermore	514	3,912	5,935	2,023	51.7%
Oak Ridge	2,185	2,906	1,822	-1,084	-37.3%
Oak Ridge National Lab.	4,049	1,411	841	-570	-40.4%
Off. of Scientific and Tech. Info.	1,000	1,000	1,000	0	0
Richland	32	532	0	-532	-100%
Oakland	4,025	2,500	2,400	-100	4.0%
National Renewable Energy Lab.	100	100	0	-100	-100%
Cooperative R&D Agreements	2,000	2,000	0	-2,000	-100%
Subtotal, Services Performed	20,856	19,826	23,336	3,510	17.7%
Total, Assoc Revenues	$ 24,356	$ 22,826	$ 26,336	$ 3,510	-15.4%
Adjustment	$ -25,356	$ -11,269	0	$ 11,269	100.0%
Budget Authority	$ -1,000	$ 11,557	$ 26,336	$ 14,779	127.9%

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III. Performance Summary:

FY 1995 Measurable Performance Activities:

PRODUCTS SOLD:

ETEC - The Sodium Component Test Installation (SCTI) at ETEC was shut down in FY 1995. However, the facility was used to test the Kalina cycle.

Savannah River - Costs associated with forest management and the sale of timber operated by the U.S. Forest Service.

PRODUCTS SOLD:

Savannah River - Costs associated with forest management and the sale of timber operated by the U.S. Forest Service.

SERVICES PERFORMED:

Albuquerque - Miscellaneous services for state and local governments, such as, highly specialized computer and automation support at the Sandia and Los Alamos National Laboratories and sale of utilities (water) to the County of Los Alamos at Los Alamos National laboratory.

Argonne - Work for state and local governments such as the Illinois Department of Energy and Natural Resources.

Brookhaven - Publication of Pergamon Press and miscellaneous activities for state and local governments.

Chicago - Certified reference materials used by the Nuclear community at the New Brunswick Laboratory.

Idaho - Irradiation services and storage of Three Mile Island (TMI) abnormal waste (reactor filters).

Lawrence Berkeley - Work for state and local governments and non-profit organizations such as seismic monitoring techniques for the State Lands commission and various services for universities.

Lawrence Livermore - Miscellaneous services performed for state and local governments such as earthquake analysis for the State of California.

Oak Ridge - Miscellaneous services for state and local governments (including providing treated water to the city of Oak Ridge) and universities.

Oak Ridge National Lab - Miscellaneous services for state and local governments.

Office of Scientific and Technical Info - Operation of the Superconductivity Information System and the National Energy Software Center, both of which provide central depositories of these valuable Departmental resources for use by DOE researchers, as well as outside users.

Richland - Miscellaneous services at Pacific Northwest Laboratory (PNL) and Kaiser Engineering.

Oakland - Particle physics collaboration with Japan and other development efforts at the Stanford Linear Accelerator Center (SLAC).

National Renewable Energy Laboratory - State and local government services.

FY 1997 Measurable Performance Activities:

PRODUCTS SOLD:

Savannah River - Costs associated with forest management and the sale of timber operated by the U.S. Forest Service.

Albuquerque - Miscellaneous services for state and local governments, such as , highly specialized computer and automation support at the Sandia and Los Alamos National Laboratories and sale of utilities (water) to the County of Los Alamos at Los Alamos National Laboratory.

Argonne - Work for state and local governments such as the Illinois Department of Energy & Natural Resources and Collaborative Access Teams of Universities seeking access to DOE technology.

Brookhaven - Publication of Pergamon Press and miscellaneous activities for state and local government.

Chicago - Certified reference materials used by the Nuclear community at the New Brunswick Laboratory.

Idaho - Irradiation services and storage of Three Mile Island (TMI) abnormal waste (reactor filters).

Lawrence Berkeley - Work for state and local governments and non-profit organizations such as seismic monitoring techniques for the State Lands Commission biological research at the Drosophila Center for National Institutes of Health and various services for universities.

Lawrence Livermore - Miscellaneous services performed for state and local governments such as earthquake analysis for the State of California and Livermore Manufacturing Outreach Center.

Oak Ridge - Miscellaneous services for state and local governments (including providing treated water to the City of Oak Ridge) and universities.

Oak Ridge National Lab - Miscellaneous services for state and local governments.

Office of Scientific and Technical Info - Operation of the Superconductivity Information System and the National Energy Software Center, both of which provide central depositories of these valuable Departmental resources for use by DOE researchers, as well as outside users.

Richland - Miscellaneous services at Pacific Northwest Laboratory (PNL) and Kaiser Engineering.

Oakland - Particle physics collaboration with Japan and other development efforts at the Stanford Linear Accelerator Center (SLAC).

National Renewable Energy Laboratory - State and local government services.

IV. Explanation of Funding Changes FY 1996 to FY 1997:

The increase of $ 1,030,000 in Argonne is related to Collaborative Access Teams made up of Universities seeking access to DOE technology.

The increase of $ 512,000 in Brookhaven is related to increased activity at Pergamon Press.

The decrease of $ 50,000 in Chicago is related to declining activity at the New Brunswick Laboratory.

The increase of $ 4,381,000 in Lawrence Berkeley is related to increased biological research for the National Institutes of Health at the Drosophila Center.

The increase of $ 2,023,000 in Lawrence Livermore is related to increased electric vehicle projects for the State of California and Livermore Manufacturing Outreach Center.

The decrease of $ 1,084,000 in Oak Ridge Operations is related to transfer of work from this account to reimbursable accounts where participants provide advance funding.

The decrease of $ 570,000 in Oak Ridge National Lab is related to declining activity for universities.

The decrease of $ 532,000 in Richland is related to use of uncosted balances to finance activity in FY 1997. The program level is declining significantly due to the transfer of work to accounts where participants provide advance funding.

The decrease of $ 100,000 in Oakland budget authority is related to declining activity at SLAC.

The decrease of $ 100,000 in National Renewable Energy Laboratory budget authority is related to the use of uncosted balances to finance activity in FY 1997. The program activity level remains unchanged.

The decrease of $ 2,000,000 in Cooperative R&D Agreements is related to eliminating request for this program. The small business activity in CRADAs was generally limited to employee participation which does not require advance funding from Cost of Work for Others.

The increase of $ 11,269,000 in the adjustment is related to unobligated balances used to finance this account in FY 1996.

V. Explanation of Average FTE Costs:

This account has no federal Full Time Equivalents.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEPARTMENTAL ADMINISTRATION
(Tabular dollars in thousands, Narrative dollars in whole dollars)

REVENUES ASSOCIATED WITH COST OF WORK FOR OTHERS

I. Mission Supporting Goals/Ongoing Responsibilities:

Associated Revenues represents the full-cost recovery offset to Cost of Work for Others, the program associated with providing products and services to our customers.

II. Funding Table:

Total, Revenues Associated	FY 1995	FY 1996	FY 1997	$ Change	% Change
Products Sold:					
Oakland	$ 0	$ 0	$ 0	$ 0	0
Savannah River	-3,500	-3,000	-3,000	0	0
Subtotal, Products Sold	-3,500	-3,000	-3,000	0	0
Services Performed:					
Albuquerque	-3,100	-3,100	-3,476	-376	-12.2%
Argonne	-50	-265	-1,300	-1,035	-390.6%
Brookhaven	-1,000	-1,413	-1,975	-562	-39.8%
Chicago	-100	-150	-100	+ 50	33.3%
Idaho	-1,327	-350	-350	0	0
Lawrence Berkeley	-5,212	-2,369	-6,310	-3,941	-166.7%
Lawrence Livermore	-514	-3,912	-6,000	-2,088	-53.4%
Oak Ridge	-4,248	-3,490	-2,690	+ 800	22.9%
Oak Ridge National Lab.	-2,780	-1,418	-867	+ 551	38.9%
Off. of Scientific and Tech. Info.	-1,158	-1,160	-1,160	0	0
Richland	-36	-537	-36	+ 501	93.3%
Oakland	-4,025	-2,500	-2,400	+ 100	4.0%
National Renewable Energy Lab.	-124	-124	-124	0	0
Cooperative R&D Agreements	-2,000	-2,000	0	+2,000	100%
Subtotal, Services Performed	-25,674	-22,788	-26,788	-4,000	-17.6%
Total, Assoc Revenues	$ -29,174	$ -25,788	$ -29,788	$ -4,000	-15.5%

III. **Performance Summary:**

The activities related to Revenues Associated with the Cost of Work for Others are described in the section above titled Cost of Work for Others.

IV. **Explanation of Funding Changes FY 1996 to FY 1997:**

The increase of $ 376,000 in Albuquerque is related to increased activity that will be financed by uncosted balances. Previous baseline activity is financed with new budget authority.

The increase of $ 1,035,000 in Argonne is related to Collaborative Access Teams made up of Universities seeking access to DOE technology.

The increase of $ 562,000 in Brookhaven is related to increased activity at Pergamon Press.

The decrease of $ 50,000 in Chicago is related to declining activity at Brunswick Laboratory.

The increase of $ 3,941,000 in Lawrence Berkeley is related to increased biological research at the Drisophila Center.

The increase of $ 2,088,000 in Lawrence Livermore is related to increased electrical vehicle projects and Livermore Manufacturing Outreach Center.

The decrease of $ 800,000 in Oak Ridge Operations is related to transfer of work from this account to reimbursable accounts where participants provide advance funding. The revenues decline less than obligations because of the use of uncosted balances.

The decrease of $ 551,000 in Oak Ridge National Laboratory is related to declining activity for Universities.

The decrease of $ 501,000 in Richland is related to revised estimates of requirements for this program. The work budgeted in the past did not materialize.

The decrease of $ 100,000 in Oakland is related to declining activity at SLAC.

The decrease of $ 2,000,000 in Cooperative R&D Agreements is related to eliminating request for this program. The small business activity in CRADAs was generally limited to employee participation which does not require advance funding from Cost of Work for Others.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEPARTMENTAL ADMINISTRATION
(Tabular dollars in thousands, Narrative dollars in whole dollars)

MISCELLANEOUS REVENUES

I. Mission Supporting Goals/Ongoing Responsibilities:

Miscellaneous Revenues are received from the sale of by-products that have no cost associated with the Departmental Administration appropriation. These items are by-products of activities funded by other on-going departmental programs and are collected as miscellaneous revenues. Included in this estimate are revenues collected from the Reimbursable Work program for added factor and depreciation.

II. Funding Table:

Miscellaneous Revenues	FY 1995	FY 1996	FY 1997	$ Change	% Change
Albuquerque	$ -1,000	$ -1,000	$ -1,000	$ 0	0
Idaho	-15,400	-15,400	-25,473	-10,073	65.4%
Pittsburgh	-23,800	-23,800	-23 800	0	0
Added Factor & Deprec	-53,302	-53,302	-42,311	+10,991	20.6%
Oak Ridge USEC	-2,016	-2,016	-2,016	0	0
Other Revenues	-1,000	-1,000	-1,000	0	0
Subtotal, Misc Revenues	$-96,518	$-96,518	$-95,600	$ +918	1.0%

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III. Performance Summary:

FY 1995 Measurable Performance Activities:

Albuquerque - Lease of facilities (gas and electric) to utility company at the Los Alamos National Laboratory at Albuquerque Field Office.

Idaho - Costs incurred at the Idaho Chemical Processing Plant for handling and basin storage of spent fuel cores for the Department of Navy.

SERVICES PERFORMED:

Albuquerque - Miscellaneous services for state and local governments, such as, highly specialized computer and automation support at the Sandia and Los Alamos National Laboratories and sale of utilities (water) to the County of Los Alamos at the Los Alamos National Laboratory.

Argonne - Work for state and local governments such as the Advanced Software Development and Commercialization project with the State of Illinois.

Brookhaven - Publication of Pergamon Press and miscellaneous activities for state and local governments.

Chicago - Certified reference materials used by the Nuclear community at the New Brunswick Laboratory.

Idaho - Irradiation services and storage of Three Mile Island (TMI) abnormal waste (reactor filters).

Lawrence Berkeley - Work for state and local governments such as seismic monitoring techniques for the State Lands Commission and various services for universities.

Lawrence Livermore - Miscellaneous services performed for state and local governments such as earthquake analysis for the State of California.

Oak Ridge - Miscellaneous services for state and local governments (including providing treated water to the City of Oak Ridge) and universities.

Oak Ridge National Lab - Miscellaneous services for state and local governments.

Office of Scientific and Technical Info - Operation of the Superconductivity Information System and the National Energy Software Center, both of which provide central depositories of these valuable Departmental resources for use by DOE researchers, as well as outside users.

Richland - Miscellaneous services at Pacific Northwest Laboratory (PNL) and Kaiser Engineering.

Oakland - Particle physics collaboration with Japan and other development efforts at the Stanford Linear Accelerator Center (SLAC).

NREL - State and local government services.

FY 1996 Measurable Performance Activities:

Pittsburgh - The Department of the Navy reimburses Pittsburgh for the nuclear material burn-up while the core is in operation.

Added Factor and Depreciation - Added factor and depreciation charges collected from other federal agencies as well as non-federal entities for Reimbursable activity conducted by the Department in accordance with full-cost recovery policy.

Oak Ridge-USEC Lease Payments - Lease of facilities - including Gaseous Diffusion Plants at Oak Ridge and Portsmouth - by United States Enrichment Corporation to reimburse the Department.

Other Revenues - Estimate based on current rate of collections for various miscellaneous revenues collected at all the sites.

FY 1996 Measurable Performance Activities:

Albuquerque - Lease of facilities (gas and electric) to utility company at the Los Alamos National Laboratory at Albuquerque Field Office.

Idaho - Costs incurred at the Idaho Chemical Processing Plant for handling and basin storage of spent fuel cores for the Department of Navy.

Pittsburgh - The Department of the Navy reimburses Pittsburgh for the nuclear material burn-up while the core is in operation.

Added Factor and Depreciation - Added factor and depreciation charges collected from other federal agencies as well as non-federal entities for Reimbursable activity conducted by the Department in accordance with full-cost recovery policy.

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Other Revenues - Estimate based on current rate of collections for various miscellaneous revenues collected at all sites.

FY 1997 Measurable Performance Activities:

Albuquerque - Lease of facilities (gas and electric) to utility company at the Los Alamos National Laboratory at Albuquerque Field Office.

Idaho - Costs incurred at the Idaho Chemical Processing Plant for handling and basin storage of spent fuel cores for the Department of Navy.

Pittsburgh - The Department of the Navy reimburses Pittsburgh for the nuclear material burn-up while the core is in operation.

Added Factor and Depreciation - Added factor and depreciation charges collected from other federal agencies as well as non-federal entities for Reimbursable activity conducted by the Department in accordance with full-cost recovery policy.

Oak Ridge-USEC Lease Payments - Lease of facilities - including Gaseous Diffusion Plants at Oak Ridge and Portsmouth - by United States Enrichment Corporation to reimburse the Department.

Other Revenues - Estimate based on current rate of collections for various miscellaneous revenues collected at all the sites.

IV. **Explanation of Funding Changes FY 1996 to FY 1997:**

The increase of $10,073,000 in Idaho is related to Navy Cores representing a larger share of the stored material due to reduced shipments into the State of Idaho.

The decrease of $10,991,000 in Added Factor and Depreciation is related to the decline of defense related work for others at Nevada and Albuquerque.

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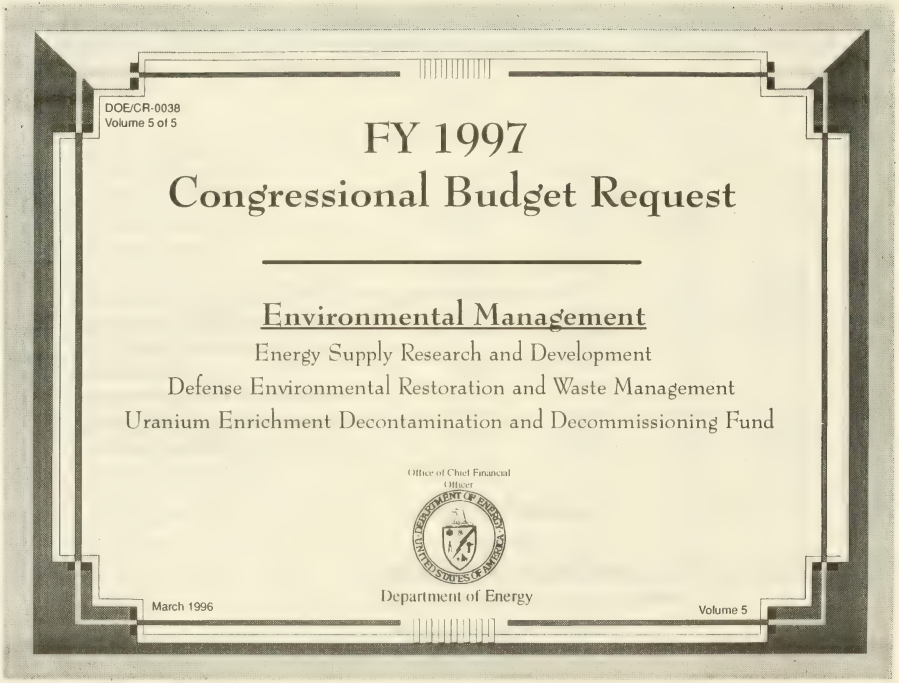
MAJOR PROGRAM ELEMENT
(Obligations in thousands)

PROGRAM OBJECT CLASS SUMMARY

		FY 1995 Comp	FY 1995 Non-comp	FY 1996 Comp	FY 1996 Non-comp	FY 1997 Request
Personnel Compensation:						
11.1	Full-time permanent	$ 91,845	154,527	$ 90,503	151,316	$ 90,686
11.3	Other than full-time permanent	6,407	7,791	5,333	5,765	5,562
11.5	Other Personnel compensation	3,950	6,348	1,349	1,671	5,448
11.8	Special personnel services payments					
11.9	Total Personnel Compensation	$ 102,202	$ 168,666	$ 97,185	$ 158,752	$ 101,696
12.1	Civilian personnel benefits	24,098	36,049	21,675	33,703	20,488
13.0	Benefits for former personnel					0
21.0	Travel and transportation of persons	3,485	5,551	2,832	4,820	3,134
22.0	Transportation of things	200	356	143	285	148
23.1	Rental payments to GSA	17,128	41,274	20,548	52,108	22,349
23.2	Rental payments to others	90	1,738	40	1,562	41
23.3	Communications, utilities, and miscellaneous charge	12,426	22,290	13,309	21,172	14,687
24.0	Printing and reproduction	1,227	3,575	1,227	3,490	1,364
25.1	Advisory and assistance services	33,650	42,758	37,647	39,108	37,647
25.2	Other services	21,785	48,000	9,319	35,104	21,796
25.3	Purchases of goods & services from Gov't accounts	20,322	33,017	22,826	34,942	15,513
26.0	Supplies and materials	3,210	5,892	3,210	5,860	3,555
31.0	Equipment	2,596	3,334	2,340	2,833	2,445
32.0	Land and structures					
99.0	Subtotal, Direct Obligations	$ 242,419	$ 412,500	$ 232,301	$ 393,739	$ 244,863
	Reimbursable Program					
99.9	Total Obligations	$ 242,419	$ 412,500	$ 232,301	$ 393,739	$ 244,863
	Recovery of prior year obligations					
	Unobligated balance available, start of year	50,064	52,328	23,262	27,042	0
	Unobligated balance available, end of year	23,262	27,042	0	0	0
	Budget Authority	$ 215,617	$ 387,214	$ 209,039	$ 366,697	$ 244,863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FY 1997
Congressional Budget Request
Environmental Management
Energy Supply Research and Development
Defense Environmental Restoration and Waste Management
Uranium Enrichment Decontamination and Decommissioning Fund
Office of Chief Financial Officer
Department of Energy
March 1996
Volume 5

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ENVIRONMENTAL MANAGEMENT

VOLUME 5

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Energy and Water Development Activities					
Energy supply research & development	3,412,738	2,869,382	3,020,497	151,115	5.3%
Uranium supply & enrichment activities	73,123	29,294	27,800	-1,494	-5.1%
Uranium enrichment D&D fund	301,327	278,807	240,200	-38,607	-13.8%
General science & research activities	970,329	982,150	1,009,150	27,000	2.7%
Atomic energy defense activities:					
Weapons activities	3,212,347	3,456,238	3,710,002	253,764	7.3%
Defense environmental restoration and waste mgmt	5,404,660	5,466,395	5,409,310	-57,085	-1.0%
Other defense programs	1,444,885	1,473,927	1,547,700	73,773	5.0%
Defense nuclear waste disposal	129,430	248,400	200,000	-48,400	-19.5%
Total, Atomic energy defense activities	10,191,322	10,644,960	10,867,012	222,052	2.1%
Departmental administration	94,415	86,733	119,475	32,742	37.8%
Office of the inspector general	28,036	26,601	29,605	3,004	11.3%
Power marketing administrations:					
Alaska power administration	6,492	4,260	4,000	-260	-6.1%
Southeastern power administration	22,423	19,843	20,900	1,057	5.3%
Southwestern power administration	21,308	29,778	26,900	-2,878	-9.7%
Western area power administration	184,352	262,551	221,665	-40,886	-15.6%
Falcon & Amistad operating & maintenance fund	—	1,000	970	-30	-3.0%
Colorado river basin	—	—	-10,000	-10,000	—
Total, Power marketing administrations	234,575	317,432	264,435	-52,997	-16.7%
Federal energy regulatory commission	—	—	—	—	—
Nuclear waste disposal fund	392,630	151,626	200,028	48,402	31.9%
Total, Energy and Water Development Activities	**15,698,495**	**15,386,985**	**15,778,202**	**391,217**	**2.5%**

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation[1]	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Interior and Related Agencies					
Fossil energy research and development	421,370	421,497	348,508	-72,989	-17.3%
Alternative Fuels Production	-3,900	-2,400	-4,000	-1,600	-66.7%
Naval petroleum and oil shale reserves	186,993	148,786	149,500	714	0.5%
Energy conservation	717,482	538,913	715,363	176,450	32.7%
Economic regulation	12,408	6,297	2,725	-3,572	-56.7%
Strategic petroleum reserve	243,663	287,000	221,300	-65,700	-22.9%
SPR petroleum account	-107,764	-187,000	——	187,000	100.0%
Proceeds from sale of Weeks Island Oil, SPR decommissioning	——	-100,000	——	100,000	100.0%
Energy information administration	84,645	72,379	66,120	-6,259	-8.6%
Clean coal technology	36,276	150,000	-500,000	-650,000	-433.3%
Total, Interior and Related Agencies	**1,591,173**	**1,335,472**	**999,516**	**-335,956**	**-25.2%**
Energy and Water Development	15,698,495	15,386,985	15,778,202	391,217	2.5%
Uranium Enrichment D&D fund discretionary payments	-133,700	-350,000	-422,548	-72,548	-20.7%
Excess FERC receipts	——	-42,000	-25,892	16,108	38.4%
Total, Department of Energy	**17,155,968**	**16,330,457**	**15,329,278**	**-1,179**	**-0.0%**

[1] *FY 1996 Comparable Appropriation column for Interior and Related Agencies reflects the most recently approved conference committee action.*

DEPARTMENT OF ENERGY
FY 1997 Congressional Budget Request
Staffing Summary

	FTEs			Percent
Energy and Water Development Activities	**FY 1995**	**FY 1996**	**FY 1997**	**Change**
Energy Supply Research and Development	2,397	2,244	2,091	-7.3%
Uranium Enrichment Program Activities	56	51	46	-10.9%
Isotope Production and Distribution	9	11	11	0.0%
General Science and Research	86	92	90	-2.2%
Atomic Energy Defense Activities				
Weapons Activities	2,142	2,127	1,997	-6.5%
Environmental Restoration & Waste Mgmt	3,244	3,265	3,127	-4.4%
Materials Support & Other Defense Programs	722	777	770	-0.9%
Total, Atomic Energy Defense Activities	6,108	6,169	5,894	-4.7%
Departmental Administration	1,760	1,639	1,537	-6.6%
Office of the Inspector General	353	354	331	-6.9%
Power Marketing Administrations	4,998	4,960	4,925	-0.7%
Federal Energy Regulatory Commission	1,411	1,453	1,463	0.7%
Nuclear Waste Fund	260	248	230	-7.8%
Total, Energy & Water Development Activities	**17,438**	**17,221**	**16,618**	-3.6%

DEPARTMENT OF ENERGY
FY 1997 Congressional Budget Request
Staffing Summary

	FTEs			Percent
Interior and Related Agencies	**FY 1995**	**FY 1996**	**FY 1997**	**Change**
Clean Coal Technology	80	76	71	-7.0%
Fossil Energy Research & Development	706	1,163	682	-70.5%
Naval Petroleum & Oil Shale Reserves	81	74	72	-2.8%
Energy Conservation	530	497	444	-11.9%
Emergency Preparedness	52	0	0	0.0%
Economic Regulation	112	90	54	-66.7%
Strategic Petroleum Reserve	156	148	139	-6.5%
Energy Information Administration	471	444	404	-9.9%
Total, Interior & Related Agencies Activities	**2,188**	**2,492**	**1,866**	-33.5%
Total Department of Energy	**19,626**	**19,713**	**18,484**	-6.6%

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EXECUTIVE SUMMARY

ENVIRONMENTAL MANAGEMENT
FY 1997 BUDGET REQUEST

The FY 1997 Environmental Management (EM) budget request is $5.878 billion. In addition, $182 million for EM privatization projects has been requested in the FY 1997 President's Budget as part of the general provisions. This request is part of an ongoing effort to improve planning and budgeting for acquisition of fixed assets and similar procurements. The EM FY 1997 budget request supports a wide variety of activities in addition to environmental restoration (i.e., cleanup) such as waste management functions, technology development efforts, plutonium stabilization, deactivation of surplus facilities and materials stabilization, nuclear non-proliferation support, a new environmental science program, privatization efforts, and various other essential EM efforts. Although environmental responsibilities continue to grow (i.e., transfer of the Savannah River, Mound and Pinellas sites from Defense Programs in FY 1996), budget growth has been curtailed. Considering the current fiscal environment, EM must grapple with long-term strategies to address projected work as the Department downsizes its production facilities and transfers the surplus facilities to EM. The fiscal pressure to hold down discretionary Federal spending points to a near-term budgetary crisis, with projected requirements far exceeding projected budgetary resources. EM has been working diligently to consider stakeholder views on the fundamental aspects of the program, including such issues as regulatory framework, total cost of meeting legal commitments, analysis of risk across the complex, pace of the environmental restoration, etc.

Declining budgets have forced EM to rethink how to accomplish the required work scope. The new EM strategy provides greater flexibility at the site level to direct resources to the activities that reduce threats to worker and public health and safety and imminent harm to the environment. The new strategy also explores non-traditional methods of competing and contracting major pieces of workscope, generally referred to as privatization, to reduce the cost to the taxpayer. EM is proposing legislation for privatization of facility deactivation, which will authorize contractor financing of deactivation projects, with the contractor being paid from savings in maintenance costs to the government. This could greatly reduce the outyear maintenance mortgage for our facilities, now approximately $600 million/year, by enabling earlier facility deactivation than would be possible based on budgetary constraints. Site managers will engage the State governments, regulators, and public stakeholders in good faith negotiations to maximize risk reduction per dollar spent. This process of stakeholder involvement has taken place during the formulation of the FY 1997 budget request. Funding flexibility, new funding strategies, and better coordination of site priorities between the Department and local interests will help EM accommodate the coming fiscal challenges.

From FY 1990 to FY 1994, the EM budget increased at a pace necessary to meet the growing requirements for transferred responsibilities from shutdown Defense production activities and to begin the immense cleanup job at these contaminated sites. The EM budget has since leveled off, although requirements are still being added to the programs. When comparing FY 1995 funding levels to the FY 1997 request, it would appear that EM has realized an approximate $69 million increase; however, on a comparable basis (considering scope transfers from other Departmental organizations), EM's budget declines by approximately $400 million. This is mostly a result of the absorption of hundreds of millions of dollars of costs associated with additional surplus facilities (e.g., Savannah River, Mound & Pinellas) transferred to EM in FY 1996.

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Program Goals

The Environmental Management program has established six strategic goals to guide its efforts and serve as yardsticks for measuring progress. The EM FY 1997 budget request reflects significant changes in order to meet these program goals. The six goals are:

- to eliminate and manage urgent risks in our system;
- to emphasize health and safety for workers and the public;
- to establish a system that is managerially and financially in control;
- to demonstrate tangible results;
- to focus technology development efforts on identifying and overcoming obstacles to progress; and,
- to establish a stronger partnership between the Department and its stakeholders.

New Formats

Consistent with other government-wide streamlining initiatives, the EM program is presenting the FY 1997 Congressional budget request in a new format which summarizes and presents the various EM program activities in a more concise and easier to understand fashion. For each major EM line program, site accomplishments for FY 1995, and planned accomplishments for FY 1996 and FY 1997 are summarized by operations office in bullet format. This is a departure from the previous side-by-side fiscal year justifications which presented program efforts at lower levels of detail. These program efforts were at times overly technical, and did not adequately present the program's performance, outputs, or accomplishments.

The FY 1997 budget request has also been prepared on a comparable basis. This means that regardless of where activities were budgeted and funding was appropriated in previous years, the FY 1995 and FY 1996 funding and activity descriptions are reflected in the program that is requesting the funding in FY 1997. This includes internal EM transfers between programs, activities transferred out of EM, and new activities transferred into EM from other Departmental organizations (i.e., Defense Programs, Nuclear Energy, etc.) This will assist the reader when comparing activities from fiscal year to fiscal year. FY 1995 and FY 1996 comparability tables have been included in the Crosscuts Section of this summary to identify the internal shifts between EM programs, as well as Departmental transfers into and out of EM.

Operating Expense Funding

In FY 1996, Congress eliminated capital equipment and general plant project (GPP) funding categories, merging them with operating expenses. This was done in an effort to provide greater flexibility to the EM programs in managing capital equipment and GPP needs. The FY 1997 request is consistent with this approach.

1998

Summary of the FY 1997 EM Budget Request

EM programs are funded under three appropriation accounts -- Defense Environmental Restoration and Waste Management; Energy Supply, Research and Development; and the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund.

FY 1997 Budget Request

(Dollars in Thousands)

Program	Defense	Energy Supply	D&D Fund	TOTAL	% of Total
Environmental Restoration	$1,762,194	$358,239	$0	2,120,433	32.8%
Uranium Enrichment D&D Fund	0	0	240,200	240,200	3.7%
Privatization	$185,000	0	0	185,000	2.9%
Waste Management	1,536,653	199,023	0	1,735,676	26.9%
Technology Development	303,771	0	0	303,771	4.8%
Environmental Science Prog	52,136	0	0	52,136	0.8%
Nuclear Mat'l & Facil Stabilization	903,821	91,353	0	995,174	15.4%
Site Operations	329,469	2,799	0	332,268	5.1%
Policy and Management	48,155	0	0	48,155	0.7%
Program Direction	446,511	0	0	446,511	6.9%
Subtotal	5,567,710	651,414	240,200	6,459,324	
Use of Prior Year Balances	-150,400	0	0	-150,400	
Savannah River Pension Fund	-8,000	0	0	-8,000	
D&D Fund Foreign Fees	0	0	-45,900	-45,900	
D&D Fund Deposit Offset	0	0	-376,648	-376,648	
TOTAL	$5,409,310	$651,414	($182,348)	$5,878,376	

EM Is Much More Than Cleanup

The industrial infrastructure used for producing and maintaining our nations nuclear weapons deterrent is massive. Factories, laboratories, and thousands of square miles of land were devoted to the successful enterprise of producing tens of thousands of nuclear weapons in the name of national security. It is important to understand, however, that this massive infrastructure still exists and is largely maintained and decommissioned by the EM program, which is sometimes loosely referred to as the "cleanup program." The nuclear weapons complex generated waste, pollution, and contamination which pose unique problems, including unprecedented volumes of contaminated soil and water, radiological hazards from special nuclear material, and a vast number of contaminated structures. The EM program has grown since its creation in 1989 in order to appropriately deal with the problems resulting from the nuclear weapons production era. Program activities in EM are much more than cleanup and include the following major efforts:

Privatization

- Provides funding to privatize a tank waste remediation system at the Hanford Site in Washington State. The funds are budgeted to allow the Department to reimburse contractors in the event the Government incurs liabilities for termination of privatization contracts.

Waste Management

- Ongoing regulatory compliance activities to bring the DOE complex "up to code" with environment, safety and health requirements; this includes construction of facilities for waste treatment and disposal (i.e., Defense Waste Processing Facility [treatment]; Waste Isolation Pilot Plant [disposal]).
- The majority of Corrective Activities program projects have been completed and the few remaining tasks have been incorporated into Waste Management program.

Environmental Restoration

- Cleanup - which includes remedial action and decontamination/decommissioning of DOE facilities
- Risk - identify and reduce and/or eliminate risks associated with contaminated soils, groundwater, surface water, and buildings at DOE and designated private facilities.
- Site completions - emphasize site completions, while maximizing beneficial reuse of site lands and facilities.

Nuclear Material & Facility Stabilization

- Support the Nation's non-proliferation goals through receipt and management of foreign research reactor spent nuclear fuel.
- Stabilizing and safeguarding plutonium scraps and residues, including stabilizing plutonium currently in forms or locations posing possible threats to workers or the public.
- Provide interim storage and management of spent nuclear fuel until ultimate disposition.
- Surveillance and maintenance of fissile materials and Defense production facilities at EM sites (Idaho, Savannah River, and Hanford sites take up 1,775 square miles).

Technology Development

- Develop high-payoff technologies that can be applied to better manage DOE-generated waste and to cleanup the inventory of DOE contaminated sites faster, safer, and cheaper than current environmental cleanup technologies. In FY 1994, 24 technologies were made available for use and transfer to the private sector; and in FY 1995, 13 new technologies were implemented at waste cleanup sites.

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EM is Much More Than Cleanup (continued)

Environmental Science Program

- This program includes efforts to establish and conduct strategic basic research related to EM issues in concert with national laboratories and universities.
- Includes risk management and analysis activities to ensure that risk analysis is integrated into the decision making process.

Site Operations

- Serves as the focal point and champion for inter-office/field operations activities and responsibilities within the EM program, including serving as the advocate for the field at Headquarters.
- Policy direction for landlord planning and budgeting, including reducing site infrastructure costs and managing workforce restructuring.
- By focusing national attention on the Transportation Management Program and the Pollution Prevention Program, EM will be responsive to the General Accounting Office and others who have pushed for a national focus for EM programs that have impact across the DOE complex. (The Transportation Management program was previously requested as a separate decision unit.)

Policy and Management

- Provides funding to plan, direct and manage the Environmental Management program and provides for various crosscutting activities, such as a national educational development program; safety and health initiatives; public accountability efforts; and strategic planning activities.

Program Direction

- Provides salaries, benefits, travel, and contractual support for the Federal workforce (3,128 FTEs nationwide in FY 1997) who are responsible for the overall direction and operation of the Environmental Management program.

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FY 1997 Program Emphasis

The FY 1997 EM Budget Request has been formulated with emphasis on the following:

- Risk. In 1993, three urgent risks were identified that existed at several sites: high-level waste tanks at Hanford, unstable plutonium, and corroded spent nuclear fuel and targets. Each of these was deadly serious and could have resulted in a catastrophic accident or serious worker injury without focused attention. EM has succeeded in eliminating, or has taken the initial step toward elimination of each of these urgent risks. The FY 1997 budget request continues to aggressively address and minimize urgent and near-term risk to workers, public and the environment.

- Compliance. Effectively prioritize and sequence work covered by Federal and State agreements to incorporate relative risk and cost effectiveness.

- Mortgage Reduction. Expedite demolition work, waste shipments, and permanent storage efforts to reduce future costs associated with growing surveillance and maintenance and deactivation costs associated with maintaining buildings and facilities that are ready for demolition, and the high costs associated with temporarily storing and monitoring wastes that are ready for permanent disposal.

- Less Studies and More Cleanup. Increase efforts to identify sources, nature and extent of contamination to allow more accurate determination of relative risk, scope and cost of projects, and establish data needs/objectives before characterization to increase the cost effectiveness and efficiency of characterization/assessment efforts. Of the total funding amount included in the FY 1997 request for Environmental Restoration, cleanup activities account for 44%, assessment activities account for 13%, and the remaining 43% is made up of the Government Contribution to the Uranium Enrichment D&D Fund Deposit, Uranium/Thorium Reimbursement, Surveillance and Maintenance, Landlord, Rocky Flats Waste Operations and Site Stabilization efforts, Compliance Oversight, and program management activities.

- Site Completions. The Environmental Restoration program is focusing on tangible results by the acceleration of efforts which will enable completion of cleanup at a number of smaller contaminated sites throughout the country. Beneficial reuse of the site lands and facilities will be maximized. Completion of nine sites is planned for FY 1997, bringing the total number of sites completed, since the establishment of EM in 1989, to 65 sites of the total 137 EM sites.

- Environmental Science Program. The need to build a stronger scientific basis for Environmental Management program efforts has been established in a number of recent studies and reports. The Galvin Commission cited the most important reason behind the slow pace of assessment and cleanup of DOE waste sites as being the low quality of science and technology that is being applied in the field. Further, the Galvin Commission cited the need for long-term, basic research in disciplines related to environmental cleanup and adopting a science-based approach that includes supporting development of technologies and expertise. In response to the Galvin Commission Report, as well as other recent recommendations, the Office of Environmental Management (EM) has established an Environmental Science Program. This program, which was initiated in FY 1996 with a $50 million congressional appropriation add, will continue efforts in FY 1997 to establish and conduct strategic basic research in concert with national laboratories and universities.

- Waste Isolation Pilot Plant. The Waste Isolation Pilot Plant will continue working towards receipt of Contact-Handled Transuranic Waste in FY 1998. Critical actions in FY 1997 include submittal of the final compliance application to the Environmental Protection Agency, completion of the Final Safety Analysis Report for disposal operations, and issuance of the Final Environmental Impact Statement for the disposal phase.

FY 1997 EM Program Emphasis (continued)

- Defense Waste Processing Facility. During FY 1997, the DWPF at Savannah River will complete its transition from startup phase to operation. The full performance capacity of the DWPF is 400 canisters per year (80 percent of maximum capacity of 500 canisters per year). Experience gained during the operation of DWPF in FY 1996 will allow for a managed increase in canister production rate in FY 1997. Projected rates in FY 1997 are a range of 80 to 150 canisters. Over the next several years, the production rate should approach the 400 canisters per year rate based on experience gained in FY 1996, FY 1997 and FY 1998.

- High-Level Waste Treatment Services. The Department will continue efforts to contract-out (privatize) treatment services for high-level waste at the Hanford Site in the State of Washington. The Department is attempting to reduce the cost of treating high-level waste contained in 177 tanks at the Hanford site by allowing free-market forces to compete with one another to set a "reasonable" price for such a service. The FY 1997 budget will provide for essential procurement package preparation, planning, management, and a termination liability fund, should the Department cancel the procurement for its own convenience.

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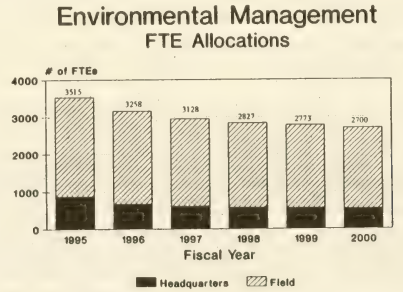
Strategic Alignment

Consistent with the Department's strategic alignment initiatives, the EM program is reducing its Federal workforce at Headquarters (employees based in the Washington, DC area) and in the field (principally 10 major operations offices located throughout the United States). The FY 1997 budget request assumes a level of 3,128 FTEs in support of the Environmental Management program.

In FY 1995, the beginning Headquarters allocation was 870 (840 EM and 30 DP) full-time equivalents (FTEs) and actual usage was 741 FTEs. EM is planning to reduce its Headquarters allocation to 676 for FY 1996, to 618 in FY 1997. Staffing levels will continue to decline over fiscal years 1998 through 2000, leveling out at 498 FTEs. Over the five-year timeframe, Headquarters will experience a 40 percent reduction in FTEs.

The field ceiling for FY 1996 has been reduced from 3,112 FTEs to 2,582 FTEs, a decrease of 530 FTEs (17 percent). Field FTE levels for FY 1997 are again reduced to 2,510, a decrease of 72 FTEs (3 percent). Field FTE levels will continue to decline over fiscal years 1998 through 2000, leveling out at 2,161 FTEs. Over the five-year timeframe, the field will experience a 30 percent reduction in FTEs. The bulk of this decrease is the elimination of the additional 400 FTEs which the Office of Management and Budget granted EM for FY 1996 to complete the 3-year Pilot Program. These positions were never filled due to the Strategic Alignment Initiative.



Per Strategic Alignment Initiative

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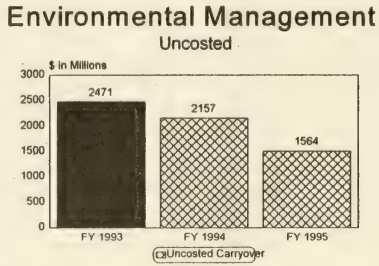
Reducing Prior Year Balances

Prior year uncosted obligations occur when funds are obligated on a contract, subcontract or purchase order, but the work has not yet been performed and the funds have not been costed or liquidated. These funds are commonly referred to as uncosted balances or carryover. The EM ending uncosted carryover balances have declined significantly over the past two years. At the end of FY 1993, EM's uncosted balances totaled $2,471 million, compared with an ending balance for FY 1994 of $2,157 million, a decrease of $314 million. The ending uncosted balance for FY 1995 was approximately $1,564 million, a reduction of nearly $600 million from the FY 1994 ending balance. Thus over the two-year period, uncosted balances for EM have been reduced by approximately one billion dollars. EM carryover balances at the end of FY 1995 were very close to established benchmarks now recognized by the General Accounting Office (GAO) as reasonable levels to carry over. At the end of FY 1995, EM uncosted balances (as a % of its budget) were the lowest of the five large programs within the Department (DP, EM, NE, ER, and FE).

EM is continuing to monitor its uncosted balances and to improve funds management to ensure that uncosted balances carried forward to the next fiscal year are as low as practical and tied to essential work scope/activities. This monitoring and analysis will ensure better utilization of resources and will enable EM to justifiably explain balances which exist at the end of each fiscal year. Unless procurement regulations are changed and requirements for up-front funding for capital equipment purchases and construction funding are altered, further significant reductions in uncosted carryover is unlikely.



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Reducing Prior Year Balances (continued)

A **preliminary** distribution of how the FY 1997 prior year balances offset will be allocated by site is shown below. EM will base the final distribution of the prior year balances offset on actual costing performance for fiscal year 1996. This is only an estimate to give the reader an approximate distribution. This is based on a preliminary estimate of $150.4 million of FY 1996 unobligated balances.

Field Office	Prior Year Balances Offset ($ 000s)
Albuquerque	($11,814)
Carlsbad Area Office	$0
Chicago	($3,890)
Idaho	($14,429)
Nevada	($2,301)
Oakland	($3,468)
Oak Ridge	($21,632)
Ohio	($15,535)
Richland	($21,761)
Rocky Flats	($15,610)
Savannah River	($17,960)
Headquarters	($22,000)
TOTAL	**($150,400)**

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CROSSCUTS

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ENVIRONMENTAL MANAGEMENT
FY 1997 CONGRESSIONAL BUDGET REQUEST
Non-Comparable Version
($ in Thousands)

	FY 1995 Adjusted Approp	FY 1996 Original Approp	FY 1996 Adjusted Approp	FY 1997 Cong Request
DEFENSE				
Corrective Activities	$96	$3,406	$0	$0
Waste Management	2,633,797	2,470,598	2,386,274	1,536,653
Privatization	0	0	0	185,000
Environmental Restoration	1,199,997	1,285,973	1,106,270	1,385,546
Fund Contribution	133,700	350,000	350,000	376,648
Technology Development	409,613	440,510	402,494	303,771
Environmental Science Program	0	0	0	52,136
Transportation Management	20,584	13,158	12,550	0
Nuclear Material & Facil Stabil	731,771	1,561,854	1,533,179	903,821
Site Operations	0	0	0	329,469
Analysis Educ & Risk Mgmt	74,532	90,022	80,898	0
Compliance and Prog Coordination	0	46,251	43,039	0
Policy and Management	0	0	0	48,155
Program Direction	0	0	0	446,511
Subtotal, Defense	5,204,090	6,261,772	5,914,704	5,567,710
NON-DEFENSE				
Corrective Activities	26,700	4,339	4,339	0
Waste Management	248,359	177,702	176,925	199,023
Environmental Restoration	387,370	366,400	362,438	358,239
Nuclear Material & Facil Stabil	73,104	73,100	73,100	91,353
Site Operations	0	0	0	2,799
Subtotal, Non-Def	735,533	621,541	616,802	651,414
D&D FUND				
Environmental Restoration	301,327	278,807	278,807	240,200
Subtotal, EM	6,240,950	7,162,120	6,810,313	6,459,324
Prior Year Used	(297,994)	(691,890	(340,083)	(150,400)
D&D Fund Deposit	(133,700)	(350,000	(350,000)	(376,648)
Foreign Fees	0	0	0	(45,900)
SR Pension Refund	0	(37,000	(37,000)	(8,000)
TOTAL	**$5,809,256**	**$6,083,230**	**$6,083,230**	**$5,878,376**

ENVIRONMENTAL MANAGEMENT
FY 1997 CONGRESSIONAL BUDGET REQUEST
COMPARABLE TO NEW STRUCTURE
($ in Thousands)

	FY 1995 Approp (Comparable)	FY 1996 Conf Mark (Comparable)	FY 1997 Cong Req (Comparable)
DEFENSE			
Waste Management	$2,194,356	$1,916,946	$1,536,653
Privatization	0	0	185,000
Environmental Restoration	1,535,680	1,454,052	1,385,546
Fund Contribution	133,700	350,000	376,648
Technology Development	277,521	297,881	303,771
Environmental Science Prog	23,650	63,875	52,136
Nuclear Material & Facil Stabil	943,535	915,744	903,821
Site Operations	454,948	383,173	329,469
Policy and Management	50,388	25,682	48,155
Program Direction	498,162	473,751	446,511
Subtotal, Defense	6,111,940	5,881,104	5,567,710
NON-DEFENSE			
Waste Management	268,428	173,514	199,023
Environmental Restoration	386,396	361,377	358,239
Nuclear Material & Facil Stabil	78,580	78,571	91,353
Site Operations	2,129	4,340	2,799
Subtotal, Non-Def	735,533	617,802	651,414
D&D FUND			
Environmental Restoration	301,327	278,807	240,200
Subtotal, EM	7,148,800	6,777,713	6,459,324
Prior Year Used	(690,661)	(397,620)	(150,400)
D&D Fund Deposit	(133,700)	(350,000)	(376,648)
Foreign Fees	0	0	(45,900)
SR Pension Refund	(40,000)	(37,000)	(8,000)
TOTAL	**$6,284,439**	**$5,993,093**	**$5,878,376**
Privatization*			182,000
REVISED TOTAL			$6,060,376

*$182M has been requested for EM privatization projects in the FY 1997 President's Budget as part of the general provisions. This request is part of an ongoing effort to improve planning and budgeting for acquisition of fixed assets and similar procurements

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENTAL MANAGEMENT
(dollars in thousands)

FY 1995 CORPORABILITY MATRIX

	Corrective Activities	Waste Management	Environ Restoration	Technology Development	Science Program	Transport Management	Nuclear Matl & Facil Stabil	Assmly Infrastr & Risk Mgmt	Policy & Management	Site Operations	Program Direction	TOTAL
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT												
FY 1995 Adjusted Approp	$512	$2,673,047	$1,379,924	$417,359	---	$20,684	$765,517	$84,948	---	---	---	$5,341,991
Rescissions	(416)	(51,579)	(60,600)	(18,600)	---	---	(33,292)	(10,200)	---	---	---	(174,687)
Travel Rescission	---	(671)	(627)	(195)	---	---	(454)	(216)	---	---	---	(2,163)
SR Approp Transfer (DP)	---	13,000	15,000	---	---	---	---	---	---	---	---	28,000
DOD Transfer	---	---	---	15,000	---	---	---	---	---	---	---	15,000
SBIR/STTR Reprogramming	---	---	---	(3,951)	---	(100)	---	---	---	---	---	(4,051)
FY 1995 Revised Adjusted Approp	96	2,633,797	1,333,697	409,613	---	20,584	731,771	74,532	---	---	---	5,204,090
EM Restructuring												
Comparable Rescission	---	2,000 a/	---	1,000 b/	---	---	1,000 c/	---	(900) a/ b/ d/	(2,100) d/	(1,000) c/	---
Comparable DOD Transfer	---	---	---	(15,000)	---	---	---	---	15,000	---	---	---
Analytical Laboratory	---	---	---	(13,201)	---	---	---	---	---	13,201	---	---
Emergency Management	---	---	---	(2,962)	---	---	---	---	---	2,962	---	---
HAMMER	---	---	---	(13,000)	---	---	---	---	---	13,000	---	---
Liaison & Communication	---	---	---	(700)	---	---	---	---	---	700	---	---
Education Development	---	---	---	(16,852)	---	---	---	---	16,852	---	---	---
Training	---	---	---	---	---	---	---	(2,364)	2,364	---	---	---
Program Support	---	---	---	(5,900)	---	---	---	(14,900)	---	20,800	---	---
Indian Grants	---	---	---	---	---	---	(1,956)	---	1,956	---	---	---
Colorado Agreement-in-Principle	---	(2,845)	---	---	---	---	2,845	---	---	---	---	---
Program Direction (HQ)	---	(15,186)	(13,292)	(9,698)	---	---	(5,075)	(17,749)	---	---	61,000	---
Program Direction (FO)	---	(60,940)	(52,564)	(10,697)	---	---	(62,475)	---	---	---	187,676	---
Support Services (HQ)	---	(31,724)	(17,803)	(19,027)	---	---	(4,184)	(21,153)	---	(14,900)	109,191	---
Support Services (FO)	---	(22,211)	(12,070)	(5,400)	---	---	(26,444)	---	---	---	66,125	---
Richland B-Plant	---	(31,346)	---	---	---	---	31,346	---	---	---	---	---
HAZWOPER	---	(3,350)	(5,806)	---	---	---	(544)	---	---	9,700	---	---
Restructuring	(96)	96	---	---	---	(20,584)	---	---	---	20,584	---	---
Spent Fuel	---	(114,703)	---	---	---	---	114,703	---	---	---	---	---
Mound	---	(11,145)	(29,030)	---	---	---	(106)	---	---	40,481	---	---
Pinellas	---	(4,920)	(3,222)	---	---	---	(1,809)	---	---	9,951	---	---
Landlord Function (NMPS)	---	---	---	---	---	---	(90,834)	---	---	90,834	---	---
Waste Minimization	---	(29,257)	---	---	---	---	---	---	---	29,257	---	---
Strategic Planning	---	---	---	---	---	---	---	(5,132)	5,132	---	---	---
Public Accountability	---	---	---	---	---	---	---	(2,892)	2,892	---	---	---
Information Management	---	---	---	---	---	---	---	(9,092)	9,092	---	---	---
Risk Managment/Recusion Support	---	---	---	(22,400)	23,650	---	---	(1,250)	---	---	---	---
Rocky Flats Site Budget	---	(110,814)	434,393	---	---	---	(323,579)	---	---	---	---	---
New Scope												
SR Scope (DP)	---	---	---	---	---	---	575,913	---	---	---	---	$575,913
SR Program Direction (DP) (389 FT	---	---	---	---	---	---	---	---	---	---	34,187	34,187
SR Support Services (DP)	---	---	---	---	---	---	---	---	---	---	26,946	26,946
SR Reactors C, P, and R	---	---	21,836	---	---	---	---	---	---	---	---	21,836
SR Landlord	---	---	---	---	---	---	---	---	---	122,212	---	122,212
77-13-A HD Rummel dissolutn	---	---	---	---	---	---	2,000	---	---	---	---	2,000
SR Reprogramming (DP)	---	---	---	---	---	---	6,000	---	---	---	---	6,000
SR ICAR Reprogramming (DP)	---	---	---	---	---	---	---	---	---	12,000	---	12,000
HQ Reprogramming (DP)	---	---	---	---	---	---	903	---	---	---	---	903
RF Transfer (DP)	---	---	15,500	---	---	---	---	---	---	---	---	15,500
Mound Scope Transfer (DP)	---	---	---	---	---	---	---	---	---	53,000	---	53,000

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENTAL MANAGEMENT
(dollars in thousands)

FY 1995 COMPARABILITY MATRIX

	Corrective Activities	Waste Management	Environ Restoration	Technology Development	Science Program	Transport Management	Nucl Matl & Facil Stabil	Analy Educ & Risk Mgmt	Policy & Management	Site Operations	Program Direction	TOTAL
Pinellas Scope Transfer (EM)	---	---	---	---	---	---	---	---	---	33,266	3,734	37,000
Headquarters Prog Direction (DP)	---	---	---	---	---	---	---	---	---	---	1,765	1,765
Transfers In/Out												
Dose Reconstruction to EH	---	(3,096)	(2,259)	(255)	---	---	(4,340)	---	---	---	---	(9,950)
Working Capital Fund from HR	---	---	---	---	---	---	---	---	---	---	8,538	8,538
FY 1995 Comparable	---	$2,194,356	$1,669,980	$277,521	$23,650	---	$943,535	---	$50,388	$454,948	$498,162	$6,111,940
Use of Prior Year (DP)												(392,667)
Savannah River Pension Refund (DP)												(40,000)
Prior Year Used for Rescission												(25,313)
Use of Prior Year Balances (EM)												(249,300)
FY 1995 Total												$5,404,660
ENERGY SUPPLY RESEARCH AND DEVELOPMENT												
FY 1995 Adjusted Approp	$26,700	$243,016	$388,597	---	---	---	$73,336	---	---	---	---	$731,649
ETEC Reprog 95-R-2 (Genl Reduc)	---	(687)	(984)	---	---	---	(186)	---	---	---	---	(1,857)
ANL Reprog 95-R-1 (Genl Reduc)	---	(170)	(243)	---	---	---	(46)	---	---	---	---	(459)
Richland Reprogramming	---	6,200	---	---	---	---	---	---	---	---	---	6,200
FY 1995 Revised Adjusted Approp	26,700	248,359	387,370	---	---	---	73,104	---	---	---	---	735,533
EM Restructuring												
Restructuring	(26,700)	26,700	---	---	---	---	---	---	---	---	---	---
Waste Minimization	---	(1,155)	---	---	---	---	---	---	---	1,155	---	---
Mound	---	---	(974)	---	---	---	---	---	---	974	---	---
Spent Fuel	---	(5,476)	---	---	---	---	5,476	---	---	---	---	---
FY 1995 Comparable	---	268,428	386,396	---	---	---	78,580	---	---	2,129	---	735,533
Use of Prior Year Balances												(23,381)
FY 1995 Total Energy Supply Research & Development												$712,152
URANIUM ENRICHMENT D&D FUND												
FY 1995 Adjusted Approp	---	---	301,327	---	---	---	---	---	---	---	---	$301,327
Deposit												(133,700)
Foreign Fees												---
FY 1995 Total UE D&D Fund												$167,627
GRAND TOTAL EM												*$6,284,439*

a/ EM-30 took $2M of rescission for EM-5 (Public Accountability)
b/ EM-50 took $1M of rescission for EM-1/10 (Marilyn Lloyd Scholarship)
c/ EM-60 took $1M of rescission for EM-20 (RESL)
d/ EM-1/10 took $2.1M of rescission for EM-20

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENTAL MANAGEMENT
(dollars in thousands)

FY 1996 COMPARABILITY MATRIX

	Corrective Activities	Waste Management	Environ Restoration	Technology Development	Science Program	Transport Management	Nucl Material & Facil Stabil	Compl & Prog Com	Analysis Educ & Risk Mgmt	Policy & Management	Site Operations	Program Direction	TOTAL
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT													
FY 1996 Approp	$3,406	$2,470,598	$1,635,971	$440,510	...	$13,158	$1,561,854	$46,251	$90,022	...	-	...	$6,261,772
PIL1 Reprogramming	...	...	...	...	...	...	12,306	...	...	...	...	...	12,306
RF Reprogramming	...	...	...	...	...	...	9,840	...	...	...	...	...	9,840
OR Reprogramming	...	5,097	...	...	...	...	...	...	...	...	...	...	5,097
New BA Taken for Uncosted Offset	(3,406)	(89,421)	(179,703)	(38,016)	...	(608)	(50,821)	(3,212)	(9,124)	...	...	...	(374,311)
FY 1996 Adjusted Approp	...	2,386,274	1,456,270	402,494	...	12,550	1,533,179	43,039	80,898	...	...	...	5,914,704
EM Restructuring													
Analytical Labs	...	...	...	...	...	...	...	(1,512)	...	...	1,512	...	...
Emergency Management	...	...	...	...	...	...	...	(464)	...	...	464	...	...
HAMMER	...	...	...	...	...	...	...	(22,541)	...	...	22,541	...	...
Training and Education	...	...	...	...	...	...	...	...	(2,607)	2,607	...	...	...
Program Support/Integration	...	...	...	...	...	...	...	(354)	...	...	354	...	...
Program Direction (HQ)	...	(13,591)	(12,132)	(6,146)	...	...	(7,158)	(5,931)	(18,760)	...	...	63,718	...
Program Direction (Field)	...	(83,419)	(61,983)	(8,044)	...	...	(80,194)	(7,770)	...	...	...	250,430	...
Support Services (HQ)	...	(12,075)	(11,314)	(10,683)	...	(903)	(2,660)	(1,955)	(24,435)	...	...	64,025	...
Support Services (Field)	...	(16,321)	(7,242)	(3,240)	...	...	(57,974)	...	...	...	...	84,777	...
Richland B Plant	...	(35,085)	...	...	...	...	35,085	...	...	...	...	...	...
HAZWOPER	...	(3,000)	(3,000)	(1,500)	...	...	(1,500)	...	...	...	9,000	...	...
Spent Fuel	...	(190,001)	...	...	...	...	190,001	...	...	...	...	...	...
Mound Site	...	(8,063)	(41,600)	...	...	...	(48,478)	...	...	...	98,141	...	...
Pinellas Plant	...	(2,269)	(5,912)	...	...	...	(44,309)	...	...	...	52,490	...	...
Landlord Function (NMFS)	...	...	...	...	...	...	(166,362)	...	...	...	166,362	...	...
Safety and Health/Quality Assurance	...	...	...	...	...	...	...	(1,854)	...	1,854	...	...	...
Restructure	...	...	...	...	...	(11,647)	...	(658)	(3,620)	3,620	12,305	...	...
SR Reactors C, P, and R	...	...	17,453	...	...	...	(17,453)	...	...	...	...	...	...
Waste Minimization	...	(20,004)	...	...	...	...	...	...	...	...	20,004	...	...
Strategic Planning	...	...	...	...	...	...	...	...	(700)	700	...	...	...
Public Accountability	...	...	...	...	...	...	...	...	(8,788)	8,788	...	...	...
Risk Management	...	...	...	...	13,875	...	...	...	(13,875)	...	...	...	...
EM Front Office/Contracting/Info Mgmt	...	...	...	...	...	...	...	...	(8,113)	8,113	...	...	...
Rocky Flats Site Budget	...	(74,289)	465,030	...	...	...	(390,741)	...	...	...	...	...	...
TLDP Interns	...	(795)	(958)	...	...	...	(398)	...	...	...	...	2,151	...
Environmental Science Program	...	...	...	(50,000)	50,000	...	...	...	...	...	...	...	...
RF Reprogramming	...	...	9,840	...	...	...	(9,840)	...	...	...	...	...	...
Transfers In/Out													
Dose Reconstruction to EH	...	(3,096)	(400)	...	...	...	(6,454)	...	...	...	...	...	(9,950)
State Health Studies to EH	...	(7,300)	...	...	...	...	...	...	...	...	...	...	(7,300)
Working Capital Fund from IR	...	...	...	...	...	...	...	...	...	...	...	8,650	8,650
Electrometallurgical to NF	...	...	...	(25,000)	...	...	...	...	...	...	...	...	(25,000)
FY 1996 Comparable	...	$1,916,946	$1,804,032	$297,881	$63,875	...	$915,744	...	$25,682	$183,173	$471,751	...	$5,881,104
Use of Prior Year Balances (Trbe Prior Year Used)													(320,172)
Use of Prior Year Balances (DP)													(57,537)
Savannah River Pension Fund (DP)													(17,000)
FY 1996 Total													$5,466,395

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENTAL MANAGEMENT
(dollars in thousands)

FY 1996 COMPARABILITY MATRIX

	Corrective Activities	Waste Management	Environ Restoration	Technology Development	Science Program	Transport Management	Nucl Material & Facil Stabil	Compl & Prog Cons	Analysis Educ & Risk Mgmt	Policy & Management	Site Operations	Program Direction	TOTAL
ENERGY SUPPLY RESEARCH AND DEVELOPMENT													
FY 1996 Approp	$4,339	$177,702	$366,400	...	...	...	$73,100	...	...	...	...	...	$621,541
96-R-8 Indian Energy Reprog	...	...	(1,592)	...	...	...	...	...	...	...	...	...	(1,592)
New IVA Taken for Uncosted Offset	...	(777)	(2,370)	...	...	...	...	...	...	...	...	...	(3,147)
FY 1996 Adjusted Approp	4,339	176,925	362,438	...	...	...	73,100	...	...	...	...	...	616,802
EM Restructuring													
Waste Minimization	...	(2,567)	...	...	...	...	...	...	...	...	2,567	...	...
Mound Site	...	...	(1,061)	...	...	...	...	...	...	...	1,061	...	...
EM-60 Landlord	...	...	...	...	...	...	(712)	...	...	...	712	...	...
Merge CA with WM	(4,339)	4,339	...	...	...	...	...	...	...	...	...	...	...
Spent Fuel	...	(5,183)	...	...	...	...	5,183	...	...	...	...	...	...
Transfers In/Out													
ETEC from NE	...	...	...	...	...	...	1,000	...	...	...	...	...	1,000
FY 1996 Comparable	...	$173,514	$361,377	...	...	...	$78,571	...	...	...	$4,340	...	$617,802
Use of Prior Year Balances (True Prior Year Use)													(19,911)
FY 1996 Total, Energy Supply/Research & Dev													$597,891
URANIUM ENRICHMENT D&D FUND													
FY 1996 Approp	...	...	278,807	...	...	...	...	...	...	...	...	...	278,807
Deposit Offset													(350,000)
FY 1996 Total, UE D&D Fund													($71,193)
GRAND TOTAL EM													$3,993,093

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Environmental Management

Operations Office/Installation Table
Congressional Budget Request
EM Totals

Operations Office/Location ($ in thousands)	FY 1996 Comp Approp Defense	Non-Def	D&D Fund	Total	FY 1996 Comp Approp Defense	Non-Def	D&D Fund	Total	FY 1997 Cong Request Defense	Non-Def	D&D Fund	Total
Albuquerque												
AL Ops	47,308	0	0	47,308	32,197	0	0	32,197	32,853	0	0	32,853
Grand Junction Proj Off	1,792	32,546	0	34,338	100	46,640	0	46,740	2,242	48,365	0	50,607
Inhalation Tox Res Inst	0	2,377	0	2,377	0	1,990	0	1,990	0	961	0	961
Kansas City Plant	6,641	0	0	6,641	14,043	0	0	14,043	13,380	0	0	13,380
Los Alamos Nat'l Lab	157,476	1,612	0	159,088	143,043	0	0	143,043	124,867	0	0	124,867
Pantex Plant	32,989	0	0	32,989	24,081	0	0	24,081	20,122	0	0	20,122
Pinellas Plant	43,217	0	0	43,217	52,490	0	0	52,490	59,065	0	0	59,065
Sandia, CA	6,369	0	0	6,369	7,113	0	0	7,113	4,801	0	0	4,801
Sandia, NM	59,807	0	0	59,807	63,804	0	0	63,804	42,126	0	0	42,126
UMTRA - Surface	0	83,900	0	83,900	0	65,946	0	65,946	0	42,967	0	42,967
UMTRA - Gwater	0	7,000	0	7,000	0	7,800	0	7,800	0	7,800	0	7,800
Waste Isolat'n Pilot Plnt	174,879	0	0	174,879	183,240	0	0	183,240	172,216	0	0	172,216
Total, Albuquerque	**530,476**	**127,435**	**0**	**657,911**	**520,111**	**122,376**	**0**	**642,487**	**471,672**	**100,093**	**0**	**571,765**
Chicago												
Ames Lab	5,306	670	0	5,976	2,760	300	0	3,060	2,175	315	0	2,490
Argonne Nat'l Lab (East)	0	28,577	0	28,577	1,119	14,351	0	15,470	0	18,868	0	18,868
Argonne Nat'l Lab (West)	9,920	3,913	0	13,833	9,289	3,795	0	13,084	5,403	6,988	0	12,391
Brookhaven Nat'l Lab	1,764	24,402	0	26,166	2,024	25,027	0	27,051	530	25,850	0	26,380
CH Ops	24,307	506	0	24,813	18,987	4,197	0	23,184	20,005	3,049	0	23,054
FERMILAB	0	5,020	0	5,020	0	1,950	0	1,950	0	2,102	0	2,102
Princeton Plasma Ph Lab	0	8,130	0	8,130	0	2,616	0	2,616	0	7,130	0	7,130
Total, Chicago	**41,297**	**71,218**	**0**	**112,515**	**34,179**	**52,236**	**0**	**86,415**	**28,113**	**64,302**	**0**	**92,415**
Idaho												
Idaho Chem Process	60,400	0	0	60,400	58,595	0	0	58,595	43,445	0	0	43,445
Idaho Nat'l Engin Lab	403,871	5,476	0	409,347	390,779	12,481	0	403,260	361,290	13,043	0	374,333
Idaho Ops	49,006	5,610	0	54,616	49,330	3,577	0	52,907	80,481	4,958	0	85,439
Total, Idaho	**513,277**	**11,086**	**0**	**524,363**	**498,704**	**16,058**	**0**	**514,762**	**485,216**	**18,001**	**0**	**503,217**
Nevada												
Nevada Test Site	810	0	0	810	1,769	0	0	1,769	1,962	0	0	1,962
Nevada Ops	68,327	0	0	68,327	73,268	0	0	73,268	79,969	0	0	79,969
Total, Nevada	**69,137**	**0**	**0**	**69,137**	**75,037**	**0**	**0**	**75,037**	**81,931**	**0**	**0**	**81,931**

Environmental Management

Operations Office/Installation Table
Congressional Budget Request
EM Totals

Operations Office/Location ($ in thousands)	FY 1995 Comp Approp Defense	Non-Def	D&D Fund	Total	FY 1996 Comp Approp Defense	Non-Def	D&D Fund	Total	FY 1997 Cong Request Defense	Non-Def	D&D Fund	Total
Oak Ridge												
K-25	76,357	0	101,936	178,293	68,735	0	90,068	158,803	51,130	0	66,908	**118,038**
OR Inst for Science & Educ	768	0	0	768	11	0	0	11	0	0	0	**0**
OR Nat'l Lab	114,843	107,802	0	222,645	110,354	54,732	0	165,086	92,835	65,786	0	**158,621**
Oak Ridge Ops	31,299	3,260	33,664	68,223	39,123	5,949	38,902	83,974	39,153	5,278	32,735	**77,166**
Oak Ridge Reservation	43,333	2,116	2,116	47,565	51,930	578	579	53,087	49,469	0	3,410	**52,879**
Paducah GDP	0	0	53,868	53,868	0	0	48,303	48,303	0	0	34,310	**34,310**
Portsmouth GDP	0	0	68,043	68,043	0	0	58,955	58,955	0	0	60,837	**60,837**
Weldon	0	41,403	0	41,403	0	58,500	0	58,500	0	67,500	0	**67,500**
Y-12	69,095	0	0	69,095	64,345	0	0	64,345	55,760	0	0	**55,760**
FUSRAP	0	74,100	0	74,100	0	73,982	0	73,982	0	83,079	0	**83,079**
Center for En &Env Res	0	0	0	0	0	0	0	0	0	0	0	**0**
Total, Oak Ridge	**335,695**	**228,681**	**259,627**	**824,003**	**334,498**	**193,741**	**236,807**	**765,046**	**288,347**	**221,643**	**198,200**	**708,190**
Oakland												
Lawrence Berkeley Lab	2,410	12,915	0	15,325	2,012	10,953	0	12,965	1,900	10,175	0	**12,075**
Lawrence Livermore NL	73,843	0	0	73,843	73,531	0	0	73,531	58,266	0	0	**58,266**
Oakland Ops	13,521	3,091	0	16,612	15,467	1,283	0	16,750	12,388	1,706	0	**14,094**
Stanford Linear Acceler Ctr	0	5,615	0	5,615	0	3,701	0	3,701	0	4,610	0	**4,610**
General Electric	0	0	0	0	0	105	0	105	0	105	0	**105**
General Atomics	0	1,830	0	1,830	0	3,000	0	3,000	0	3,600	0	**3,600**
U.C. Davis	0	3,472	0	3,472	0	4,054	0	4,054	0	4,563	0	**4,563**
Energy Tech Eng Ctr/SSFL	2,175	6,803	0	8,978	3,500	7,589	0	11,089	1,000	22,449	0	**23,449**
Total, Oakland	**91,949**	**33,726**	**0**	**125,675**	**94,510**	**30,685**	**0**	**125,195**	**73,554**	**47,208**	**0**	**120,762**
Ohio												
Battelle Columbus Lab	8,215	16,807	0	25,022	8,192	11,568	0	19,760	482	3,500	0	**3,982**
Fernald Envir Mgmt Project	232,048	0	0	232,048	259,881	0	0	259,881	266,170	0	0	**266,170**
Mound Plant	93,481	974	0	94,455	98,141	1,061	0	99,202	86,242	1,223	0	**87,465**
Ohio Field Office	22,876	100	0	22,976	29,733	100	0	29,833	34,934	0	0	**34,934**
Reactive Metals, Inc	5,350	0	0	5,350	9,332	0	0	9,332	20,284	0	0	**20,284**
West Valley	0	124,723	0	124,723	0	115,389	0	115,389	0	123,601	0	**123,601**
Total, Ohio	**361,970**	**142,604**	**0**	**504,574**	**405,279**	**128,118**	**0**	**533,397**	**408,112**	**128,324**	**0**	**536,436**
Richland	**1,429,127**	**81,614**	**0**	**1,510,741**	**1,318,882**	**60,839**	**0**	**1,379,721**	**1,260,106**	**59,032**	**0**	**1,319,138**
Rocky Flats	**604,773**	**0**	**0**	**604,773**	**584,455**	**0**	**0**	**584,455**	**551,647**	**0**	**0**	**551,647**
Savannah River	**1,546,074**	**292**	**0**	**1,546,366**	**1,287,985**	**4,300**	**0**	**1,292,285**	**1,174,621**			

23-254 96-59

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Environmental Management

Operations Office/Installation Table

Congressional Budget Request

EM Totals

Operations Office/Location ($ in thousands)	FY 1995 Comp Approp				FY 1996 Comp Approp				FY 1997 Cong Request			
	Defense	Non-Def	D&D Fund	Total	Defense	Non-Def	D&D Fund	Total	Defense	Non-Def	D&D Fund	Total
Headquarters												
Headquarters	412,873	38,877	0	451,750	289,455	9,449	0	298,904	275,478	8,511	0	283,989
Ur/Th Reimbursement	0	0	41,700	41,700	0	0	42,000	42,000	0	0	42,000	42,000
Contribution to D&D Fund	133,700	0	0	133,700	350,000	0	0	350,000	376,648	0	0	376,648
Morgantown Energy Tech Ctr	52,796	0	0	52,796	78,826	0	0	78,826	76,073	0	0	76,073
Pittsburgh Energy Tech Ctr	10,417	0	0	10,417	14,528	0	0	14,528	11,519	0	0	11,519
Technical Lead Dev Prog	1,500	0	0	1,500	3,216	0	0	3,216	4,230	0	0	4,230
Buyout Costs	0	0	0	0	4,782	0	0	4,782	8,104	0	0	8,104
Total, Headquarters	**611,286**	**38,877**	**41,700**	**691,863**	**740,807**	**9,449**	**42,000**	**792,256**	**752,052**	**8,511**	**42,000**	**802,563**
SUBTOTAL, EM	**6,135,061**	**735,533**	**301,327**	**7,171,921**	**5,894,447**	**617,802**	**278,807**	**6,791,056**	**5,575,371**	**651,414**	**240,200**	**6,466,985**
Govt Contribution to D&D Fund	0	0	(133,700)	(133,700)	0	0	(350,000)	(350,000)	0	0	(376,648)	(376,648)
Use of Prior Year Balances	(667,280)	(23,381)	0	(690,661)	(377,709)	(19,911)	0	(397,620)	(150,400)	0	0	(150,400)
D&D Fund Foreign Fees	0	0	0	0	0	0	0	0	0	0	(45,900)	(45,900)
Savannah River Pension Fund	(40,000)	0	0	(40,000)	(37,000)	0	0	(37,000)	(8,000)	0	0	(8,000)
Unobligated Offset	(23,121)	0	0	(23,121)	(13,343)	0	0	(13,343)	(7,661)	0	0	(7,661)
TOTAL, EM	**5,404,660**	**712,152**	**167,627**	**6,284,439**	**5,466,395**	**597,891**	**(71,193)**	**5,993,093**	**5,409,310**	**651,414**	**(182,348)**	**5,878,376**

Energy Supply Research and Development

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DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ENVIRONMENTAL MANAGEMENT

VOLUME 5

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Environmental Restoration & Waste Mgmt. (Non-Defense)					
Environmental restoration	386,396	361,377	358,239	-3,138	-0.9%
Waste management	268,428	173,514	199,023	25,509	14.7%
Nuclear materials and facilities stabilization	78,580	78,571	91,353	12,782	16.3%
Site operations	2,129	4,340	2,799	-1,541	-35.5%
Subtotal, Environmental Restoration & Waste Mgmt.	735,533	617,802	651,414	33,612	5.4%
Use of prior year balances	-23,381	-19,911	——	19,911	100.0%
Total, Environmental Restoration & Waste Management	**712,152**	**597,891**	**651,414**	**53,523**	**9.0%**

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT ACTIVITIES

PROPOSED APPROPRIATION LANGUAGE

For expenses of the Department of Energy activities including the purchase, construction and acquisition of plant and capital equipment and other expenses incidental thereto necessary for energy supply, research and development activities, and other activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion; purchase of passenger motor vehicles (not to exceed [25, of which 19 are] 24 for replacement only), [$2,727,407,000] $3,020,497, to remain available until expended.

EXPLANATION OF CHANGE

There are essentially no changes in the appropriation language other than the number of vehicles.

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ENVIRONMENTAL MANAGEMENT

PROGRAM MISSION

The Environmental Management (EM) program is responsible for identifying and reducing risks and managing waste at sites where the Department carried out nuclear energy or weapons research and production activities. These past efforts resulted in radioactive, hazardous, and mixed waste contamination which requires remediation, stabilization, or some other type of action. The EM program is budgeted under three appropriation accounts: Defense Environmental Restoration and Waste Management; Energy Supply, Research and Development; and Uranium Enrichment Decontamination and Decommissioning Fund. Under the Energy Supply, Research and Development account, the EM program includes waste management functions; environmental restoration activities; nuclear material and facility stabilization activities; and site operations efforts.

The **GOALS** of the EM program are:

- Eliminate and manage the urgent risk in the system;
- Emphasize health and safety for our workers and the public;
- Establish a system that increases managerial and financial control;
- Demonstrate tangible results;
- Focus technology development efforts on identifying and overcoming obstacles to progress; and,
- Establish a stronger partnership between the Department of Energy and its stakeholders.

To help achieve these goals, the EM program has made a commitment to performance measurement and to meeting the requirements of the Government Performance and Results Act of 1993. In response to this Act and in keeping with efforts to improve management practices, the Secretary of Energy has directed the Department to expeditiously adopt performance-based budgeting. The intent of performance-based budgeting is to show a direct relationship between program resources expended and results achieved. The EM program will continue to build on these efforts and focus its resources on meeting its goals.

When the EM program was established in late 1989, it inherited a legacy with significant environmental and political challenges. The 137 Environmental Management sites in 34 States have different functions, geographies, and degrees and types of contamination. The number of sites and facilities in the EM program continues to grow as the Department shifts its focus from primarily production efforts to environmental management activities. These sites include contaminated surface water or groundwater, soil, and structures currently totalling over 3,300 square miles of contaminated area. No other nation, government, or private entity has attempted a cleanup program of this scope and magnitude before.

PROGRAM MISSION, ENVIRONMENTAL MANAGEMENT, NON-DEFENSE (continued)

The EM program must comply with a significant number of legal requirements which result from 103 Departmental compliance agreements and a multitude of Federal, State, and local health and safety environmental statutes. Achieving a balance between requirements in existing agreements, risks associated with conditions at the various sites, and available resources will be a challenge requiring increased cost efficiency through better project performance and cost containment. The program's main challenge is to develop a strategy, within existing and projected technical and financial constraints, that enables the Department to meet its commitments to the American people.

MAJOR ACTIVITIES:

- Environmental Restoration: The objectives of the Environmental Restoration program are to stabilize radioactive waste, carry out remediation activities, or perform decontamination and decommissioning at contaminated DOE and legislatively-authorized non-government facilities and sites; to conduct assessments and characterization of DOE sites to determine if there is the potential for radioactive and hazardous waste releases; and to reduce and remove the potential risks to the environment and to human health and safety resulting from past non-defense Departmental activities.

- Waste Management: These activities are focused on safely, effectively, and efficiently managing the minimization, characterization, transportation, treatment, storage, and disposal of radioactive, hazardous, mixed, and sanitary wastes generated by past and ongoing operations at DOE facilities. These fundamental functions are necessary to safely and effectively manage waste which has resulted from the Department's major nuclear programs, and to prepare for new waste resulting from Environmental Restoration activities.

- Nuclear Material and Facility Stabilization: Coordinates and oversees the orderly transfer of surplus contaminated installations, facilities, and materials to EM, and plays a significant role in developing and implementing the policy and procedures for acceptance and disposition of these facilities. This program focuses on deactivation activities in a cost-effective and environmentally-sound manner to substantially decrease outyear surveillance and maintenance mortgages associated with currently contaminated facilities.

- Site Operations: Serves as the focal point and champion for crosscutting activities and responsibilities within the EM program, including serving as the advocate for the field at Headquarters. Policy direction for landlord planning and budgeting including reducing site infrastructure costs and managing workforce restructuring. The Pollution Prevention program provides for planning, coordinating and implementing a DOE-wide Pollution Prevention program.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(dollars in thousands)

PROGRAM FUNDING PROFILE

Environmental Management

Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Corrective Activities	$0	$4,339	($4,339) a/	$0	$0
Environmental Restoration	$386,396	$366,400	($5,023) b/	$361,377	$358,239
Waste Management	$268,428	$177,702	($4,188) c/	$173,514	$199,023
Nuclear Material and Facility Stabilization	$78,580	$73,100	$5,471 d/	$78,571	$91,353
Site Operations	$2,129	$0	$4,340	$4,340	$2,799
Total, EM	$735,533	$621,541	($3,739)	$617,802	$651,414
Use of Prior Year Balances (Offset)	(23,381)	(23,058)	3,147 e/	(19,911)	0
TOTAL, EM	*$712,152*	*$598,483*	*($592)*	*$597,891*	***$651,414***

a/ Reflects a comparability adjustment only.
b/ Includes -$2,370K taken as a new B/A reduction for use of prior year balances, as well as other comparability adjustments
c/ Includes -$777K taken as a new B/A reduction for use of prior year balances, as well as other comparability adjustments
d/ Reflects a comparability adjustment only.
e/ Reflects uncosted offset taken as a new B/A reduction

ENVIRONMENTAL RESTORATION

PROGRAM MISSION

The mission of the Environmental Restoration (ER) program is to protect human health and the environment from risks posed by inactive and surplus Department of Energy (DOE) facilities and contaminated areas, by remediating and decontaminating and dismantling (D&D) sites, facilities and contaminated areas in the most cost-efficient and responsible manner possible in order to provide for future beneficial use. Program responsibilities include interim/remedial actions, D&D, compliance oversight, surveillance and maintenance (S&M) landlord functions and a prudent amount of program management activities. This budget request includes funds to carryout activities that must be undertaken immediately to minimize or prevent significant risk to workers, the public or the environment; activities required by current Federal, State and local regulatory agreements (in place or in negotiation); and support of other legal requirements, and DOE Orders.

The ER program currently manages activities in three appropriation accounts: EM Defense, EM Non-Defense, and Uranium Enrichment (UE) Decontamination and Decommissioning Fund appropriation. In total, the ER program includes over 600 Comprehensive Environmental Response, Compensation and Reliability Act (CERCLA) and Resource Conservation & Recovery Act (RCRA) projects, including 320 projects associated with sites on the Environmental Protection Agency's (EPA's) National Priorities List (NPL), 46 Formerly Utilized Sites Remedial Actions Project (FUSRAP) sites and 24 Uranium Mill Tailing Remedial Action Project (UMTRAP) sites, and more than 50 other projects. This budget area addresses the non-defense related areas of the CERCLA/RCRA projects in the ER inventory, all of the FUSRAP and UMTRAP sites, and a number of other site remediation efforts. For a more comprehensive/detailed explanation of ER activities, please refer to the ER Program Mission description for the Defense Environmental Restoration and Waste Management appropriation account. This section describes the overall ER mission and program efforts in more detail and includes graphic displays and performance measure information for the entire ER program.

The ER program faces the following challenges:

- Addressing and minimizing urgent and near-term risk to workers, the public and the environment.
- Maintaining a safe, productive, results oriented program.
- Effectively prioritizing and sequencing work covered by Federal and State agreements to incorporate relative risk.
- Demonstrating substantial progress to stakeholder/taxpayers.
- Maintaining the momentum of the program given the constrained budgetary climate facing all Federal Government programs.

PROGRAM MISSION - ENVIRONMENTAL RESTORATION - NON-DEFENSE (Continued)

To meet these challenges and fulfill its mission, the ER program has established eight goals. They are:

(1) Eliminate, reduce, or contain off-site contamination that may pose an adverse risk to the public and/or environment.
(2) Prevent migration of contaminants through timely identification, reporting, assessment, application of best technologies, and safe storage.
(3) Identify, decontaminate and/or control all sites and facilities formerly used by DOE and its contractors.
(4) Eliminate, reduce, or contain on-site contamination, that in future land use, may pose an adverse risk to the public and/or environment.
(5) Responsibly and cost effectively invest in activities, such as site safety, security, and utilities required to maintain the infrastructure to support the ER mission.
(6) Expeditiously cleanup and release facilities and land for public beneficial use
(7) Make prudent business decisions, such as funding activities that support and enhance the effective and efficient achievement of the ER mission.
(8) Increase efforts to identify sources, nature and extent of contamination to allow more accurate determination of relative risk, scope and cost of projects and establish data needs/objectives before characterization to increase the cost effectiveness and efficiency of characterization efforts.

The broad strategy of the ER program is to accelerate remediation completions at small sites, address the highest risks first at large sites, and complete decommissioning. Hence, the ER program has organized its sites and facilities into five categories, based upon site and facility similarities, to implement this strategy. These five categories are: UMTRAP and FUSRAP, Other Small Sites, Large Site Decommissioning, and Large Site Remedial Actions (RAs). The organization into these five categories allows for comparability of like sites and facilities, refinement of program focus and direction, and development of remediation strategies. Remediation efforts at EP sites and facilities, within each category are prioritized and sequenced based upon the eight goals discussed above. The definition and objectives of these categories are discussed below.

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<u>UMTRAP and FUSRAP Category</u>
UMTRAP and FUSRAP are separate programs which were initiated in the mid to late 70's, with some sites specifically added by Congress to FUSRAP and UMTRAP, separately authorized by Public Law 95-604 (as amended by P.L. 100-616). These remediation efforts maintain relatively short project durations, small project lifecycle costs and the scope is usually well defined. These sites may include associated vicinity properties which contain material from the main site. Site completion reduces total program costs by eliminating annual fixed costs.

The objectives of these two categories are to complete surface remediation of all 24 UMTRAP sites and vicinity properties by FY 1998; complete UMTRAP ground water activities by 2014; complete remediation of all 46 FUSRAP sites and vicinity properties by 2016; address immediate risk concerns and perform remediation consistent with stakeholder consensus and funding.

<u>Other Small Sites Category</u>
The Other Small Sites category includes those sites not included in FUSRAP or UMTRAP and have an estimate to complete of $150,000,000 or less. Completion of these sites best demonstrates tangible progress in ER to stakeholders, and site completions reduces total program costs by eliminating fixed costs. These sites also have relatively short project durations, small lifecycle costs and are well defined.

The objectives of this category are to reduce relative risk and demonstrate progress by completion of as many of these small sites as soon as possible, within the resources available in the non-defense appropriation account.

Large Site Decommissioning Category
This category includes all activities in the D&D program which are not included in the Other small sites category. D&D activities are typically lower priority, but hold the largest potential for reducing fixed infrastructure costs and, therefore, long-term mortgage.

The objectives of this category are to reduce long-term mortgage, address high risks, and maintain cost-effective funding level.

Large Site Remedial Actions (RA) Category
This category includes all activities in the remedial action (RA) program that are not included in any of the above categories. It is the largest segment of environmental restoration responsibility and includes sites with widely varied risk potential and possible large volumes of waste. These activities typically involve large projects driven by legal statutes and agreements.

The objectives of this category are to sequence work based on relevant attributes and maintain or reduce the current risk state at each site.

In response to the Department's commitment to improve management practices and to adopt performance based budgeting, the ER program tracks performance measures in four areas: 1) completed characterization/assessments; 2) completed interim and removal actions and expedited response actions; 3) completed RAs; and 4) completed final D&D projects. Characterization/Assessments are denoted by a completed key assessment document such as a Record of Decision (ROD), Corrective Measure Study (CMS), Closure Plan, D&D Plan, Proposed Plan, National Environmental Policy Act (NEPA) document, or No Action Decision. Interim and removal actions are any actions resulting in physical cleanup progress, reduction of exposure or contaminants or containment of a source term or any action to restrict access to contaminants. Final remedial actions include RCRA closures, RCRA final corrective measures, CERCLA final remedial actions and completed underground tank programs. D&D final actions are completed when D&D objectives have been met and a report has been submitted for approval. In addition, the program tracks the status of on-going projects in the four performance areas.

The ER program has aggressively pursued productivity savings and cost efficiency initiatives, with the objective to administer a program which delivers the "most bang for the buck." In particular, major efforts have been underway to increase the cost effectiveness and efficiency of characterization/assessment activities. In addition, much focus has been placed on the effective management of ER uncosted carryover balances to both reduce and optimize these balances using sound management practices. One initiative which EM is pursuing and from which ER can benefit is the "privatization of deactivation" initiative described on the first page of the EXECUTIVE SUMMARY. Savings from that initiative will be available for ER's decommissioning activities.

To provide maximum flexibility in addressing remediation efforts, all activities are budgeted under operating expenses and may include capital equipment-type and construction-type activities. This is consistent with the manner in which ER activities were budgeted and approved by Congress in previous years.

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PROGRAM MISSION - ENVIRONMENTAL RESTORATION - NON-DEFENSE (Continued)

Specific information relating to program diversity, performance measures, assessment versus cleanup trends and uncosted carryover trends for the ER program are presented in the ER "Defense" Program Mission statement mentioned previously. Please refer to these tables which are presented from a "National" ER perspective. That is, they combine and display all three appropriation accounts for the purpose of demonstrating how the entire ER program fits together. Non-defense specific tables can be found following the Program Performance Summary introductory paragraph for this section.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Dollars in Thousands)

ENVIRONMENTAL RESTORATION

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comparable Adjustments	FY 1996 Adjusted Comp	FY 1997 Budget Request
Facilities and Sites	$221,396	$216,302	($2,653)a/	$213,649	$224,393
FUSRAP	74,100	76,352	(2,370)b/	73,982	83,079
UMTRA - Surface	83,900	65,946	0	65,946	42,967
UMTRA - Groundwater	7,000	7,800	0	7,800	7,800
Total, Environmental Restoration	$386,396	$366,400	($5,023)	$361,377	$358,239

a/ Includes comparability adjustment (Mound transfer to Site Operations) and Indian Energy reprogramming (96-R-8).
b/ $2,370k taken as a new BA reduction for use of prior year balances, as well as other comparability adjustments.

Public Law 95-95, DOE Organizational Act

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, narrative in whole dollars)

ENVIRONMENTAL RESTORATION

PROGRAM FUNDING BY SITE

Program Activity	FY 1995 Comparable Adjusted	FY 1996 Original Appropriation	Real & Comparable Adjustments	FY 1996 Adjusted Comp	FY 1997 Budget Request	$ Change	% Change
ALBUQUERQUE OPERATIONS OFFICE							
Grand Junction Projects Office	$32,546	$46,640	$0	$46,640	$48,365	$1,725	4%
Inhalation Toxiology Research Institute	1,702	1,360	0	1,360	325	(1,035)	-76%
Los Alamos National Laboratory	1,612	0	0	0	0	0	0%
UMTRA - Groundwater	7,000	7,800	0	7,800	7,800	0	0%
UMTRA - Surface	83,900	65,946	0	65,946	42,967	(22,979)	-35%
Subtotal, Albuquerque	$126,760	$121,746	$0	$121,746	$99,457	($22,289)	-18%
CHICAGO OPERATIONS OFFICE							
Argonne National Laboratory (East)	$12,470	$6,768	$0	$6,768	$8,176	$1,408	21%
Argonne National Laboratory (West)	503	941	0	941	1,718	777	83%
Brookhaven National Laboratory	13,200	20,011	0	20,011	20,000	(11)	-0%
Chicago Operations Office	590	1,266	0	1,266	2,961	1,695	134%
Princeton Plasma Physics Laboratory	0	0	0	0	0	0	0%
Subtotal, Chicago	$26,763	$28,986	$0	$28,986	$32,855	$3,869	13%
OAKLAND OPERATIONS OFFICE							
Energy Technology Engineering Center	$2,856	$4,023	$0	$4,023	$3,213	($810)	-20%
General Atomic	1,830	3,000	0	3,000	3,600	600	20%
General Electric	0	105	0	105	105	0	0%
Geothermal Test Facility	0	0	0	0	100	100	0%
Laboratory for Energy Related Health Research	3,472	3,777	0	3,777	4,380	603	16%
Lawrence Berkeley National Laboratory	3,672	4,160	0	4,160	3,676	(484)	-12%
Oakland Operations Office	802	750	0	750	956	206	27%
Stanford Linear Accelerator Center	945	742	0	742	995	253	34%
Subtotal, Oakland	$13,577	$16,557	$0	$16,557	$17,025	$468	3%

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PROGRAM FUNDING BY SITE, Environmental Restoration -- (Non-Defense) (Continued)

Program Activity	FY 1995 Comparable Adjusted	FY 1996 Original Appropriation	Real & Comparable Adjustments	FY 1996 Adjusted Comp	FY 1997 Budget Request	$ Change	% Change
OAK RIDGE OPERATIONS OFFICE							
Oak Ridge National Laboratory	$46,629	$29,662	$0	$29,662	$36,734	$7,072	24%
Weldon Springs	41,403	58,500	0	58,500	67,500	9,000	15%
FUSRAP	74,100	76,352	(2,370)a/	73,982	83,079	9,097	12%
Oak Ridge Reservation	2,116	578	0	578	0	(578)	-100%
Oak Ridge Operations Office	3,260	5,949	0	5,949	5,278	(671)	-11%
Subtotal, Oak Ridge	$167,508	$171,041	($2,370)	$168,671	$192,591	$23,920	14%
OHIO FIELD OFFICE							
Battelle Columbus Laboratory	$16,807	$11,568	$0	$11,568	$3,500	($8,068)	-70%
Mound Plant	0	1,061	(1,061)b/	0	0	0	0%
Ohio Operations Office	100	100	0	100	0	(100)	-100%
Subtotal, Ohio	$16,907	$12,729	($1,061)	$11,668	$3,500	($8,168)	-70%
SAVANNAH RIVER OPERATIONS OFFICE							
Savannah River Site	$292	$4,300	$0	$4,300	$4,300	$0	0%
HEADQUARTERS							
Headquarters	$34,589	$11,041	($1,592)c/	$9,449	$8,511	($938)	-10%
TOTAL, ENVIRONMENTAL RESTORATION	$386,396	$366,400	($5,023)	$361,377	$358,239	($3,138)	-1%

a/ New BA reduction for use of prior year balances

b/ Comparability adjustments; transferred to Site Operations

c/ Indian Energy reprogramming (96-R-8)

AIP	Agreement-in-Principle
ANL	Argonne National Laboratory
BCL	Battelle Columbus Laboratory
BNL	Brookhaven National Laboratory
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CHO	Chicago Operations Office
CMS	Corrective Measures Study
D&D	Decontamination and Dismantlement
DOE	Department of Energy
EA	Environmental Assessment
EBR	Experimental Breeder Reactor
EBWR	Experimental Boiling Water Reactor
EE/CA	Engineering Evaluation/Cost Analysis
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ER	Environmental Restoration
ETEC	Energy Technology Engineering Center
FFA	Federal Facility Agreement
FS	Feasibility Study
FUSRAP	Formally Utilized Sites Remedial Action Program
GA	General Atomics
GE	General Electric
GJPO	Grand Junction Project Office
GJPORAP	Grand Junction Project Office Remedial Action Program
HWCTR	Heavy Water Cooling Test Reactor
HWMF	Hazardous Waste Handling Facility
ISV	In-Situ Vitrification
ITRI	Inhalation Toxicology Research Institute
IVC	Independent Verification Certification
LANL	Los Alamos National Laboratory
LBL	Lawrence Berkeley Laboratory
LEHR	Laboratory for Energy-Related Health Research
LLW	Low-Level Waste
LTSM	Long-Term Surveillance and Maintenance
MOU	Memorandum of Understanding
MP	Major Project
MSA	Major Systems Acquisition
MSRE	Molten Salt Reactor Experiment
NEPA	National Environmental Policy Act
NPL	National Priorities List
NRC	Nuclear Regulatory Commision
OHF	Old Hydrofracture Facility
ORAU	Oak Ridge Associated Universities
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
OU	Operable Unit
PCB	Polychlorniated Biphenyls
PPPL	Princeton Plasma Physics Laboratory
PRP	Potential Responsibility Party
RA	Remedial Action
RCRA	Resource Conservation & Recovery Act
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RMDF	Radioactive Material Disposal Facility
ROD	Record of Decision
S&M	Surveillance and Maintenance
SFO	San Francisco Operations Office
SLAC	Stanford Linear Accelerator Center
SPRU	Separations Process Research Unit
SRS	Savannah River Site
SSFL	Santa Susana Field Laboratory
SWMU	Solid Waste Management Unit
TRU	transuranic
UMTRA	Uranium Mill Tailings Remedial Action
UMTRAP	Uranium Mill Tailings Remedial Action Project
UST	Underground Storage Tank
WAG	Waste Area Group
WSSRAP	Weldon Spring Site Remedial Action Project

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, narrative in whole dollars)

ENVIRONMENTAL RESTORATION

PROGRAM PERFORMANCE SUMMARY

The Environmental Restoration Non-Defense Program Performance Summary includes remedial action (RA) activities, decontamination and dismantlement (D&D) efforts, surveillance and maintenance (S&M), landlord, compliance oversight activities, and a prudent amount of program management and technical support activities necessary to maintain the effective management of overall program efforts. In addition, UMTRA Surface and Ground Water Projects and FUSRAP activities are included in this budget request. All operations/field office environmental restoration activities have been designated either a Major Systems Acquisition (MSA) or a Major Project (MP) by DOE and are administered in accordance with Departmental requirements for these major project designations. For additional details on schedules and other site-specific information, please refer to the various Operating Expense Funded Site Activity Descriptions included with this submission.

Tables follow (ND-1 through ND-3) which provide specific non-defense information relating to overall fiscal year funding, distribution of funds by category of effort, and budget trends by category.

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Table ND-1
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

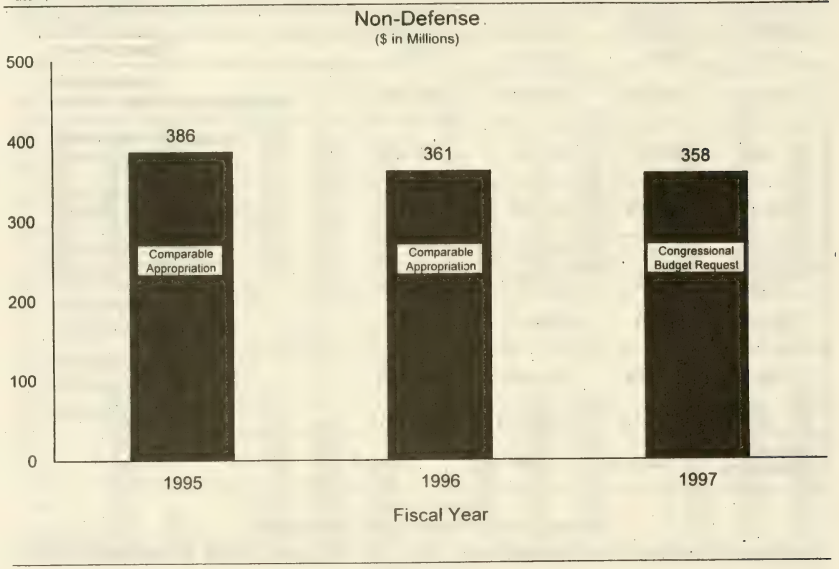


Table ND-2
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

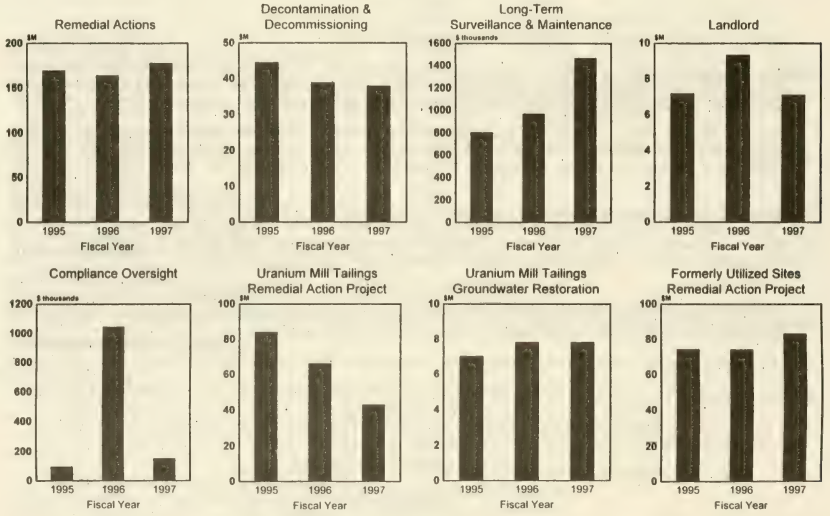
Distribution of Funding - Non-Defense

($ in thousands)

	FY 1995	FY 1996	FY 1997	% Change FY1996-FY1997
Remedial Actions	$168,586	$163,286	$176,974	8.4%
Decontamination & Decommissioning	$44,409	$38,732	$37,814	-2.4%
Long-Term Surveillance & Maintenance	$800	$963	$1,465	52.1%
Landlord	$7,155	$9,326	$7,090	-23.9%
Compliance Oversight	$93	$1,042	$150	-85.6%
Uranium Mill Tailings Remedial Action Project	$83,900	$65,946	$42,967	-34.8%
Uranium Mill Tailings Groundwater Restoration	$7,000	$7,800	$7,800	0%
Formerly Utilized Sites Remedial Action Project	$74,100	$73,982	$83,079	12.3%
Uranium Leasing	$353	$300	$900	200%
TOTAL	$386,396	$361,377	$358,239	-0.87%

Table ND-3
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

Budget Trend - Non-Defense



1875

ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

ALBUQUERQUE

FACILITIES AND SITES

1. Mission Supporting Goals and Objectives

The ER Program, managed through the Albuquerque Operations Office, supports activities at four sites in the States of New Mexico (Los Alamos National Laboratory (LANL), Inhalation Toxicology Research Institute (ITRI), Colorado Grand Junction Projects Office GJPO), and Utah (Monticello millsite and vicinity properties).

ITRI, located in Albuquerque, conducts studies on the health effects of inhaling potentially hazardous airborne materials that might be found in industry, the environment, or the home. Major environmental restoration activities have focused on remediation of seven underground storage tanks and underground pipeline, along with 3,000 cubic yards of contaminated soil from the diesel oil release/spill area at the site, remediation of radioactive soil, concrete and metal structures from Hot Ponds and Sewage Lagoon sites. Initial assessment activity began in FY 1991, and remedial activity is planned to be completed by FY 1996.

The GJPO is located immediately south of the City of Grand Junction, Colorado, on a 56-acre site adjacent to the Gunnison River. GJPO supports the ER Program in the areas of site characterization, project integration and coordination, remedial design, remedial action, independent verification, D&D, assessment of technology needs, and geoscience and analytical chemistry.

Environmental restoration efforts at and around the Monticello, Utah sites include remedial action on a 10-acre inactive Government-owned uranium/vanadium mill processing site and the adjacent 300 acres of private and DOE-owned peripheral properties, assessment of surface and ground water contamination near Monticello, and RA of approximately 400 private properties (referred to as "Vicinity Properties") which have been contaminated by mill tailings from the Monticello millsite.

II. Funding Schedule - Albuquerque (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 24,285	$ 33,995	$ 34,065	$ 70	0
Decontamination & Dismantlement	3,208	3,300	5,050	1,750	+53
Long-term S&M	766	929	1,435	506	+54
Landlord	7,155	9,326	7,090	-2,236	-24
Compliance Oversight	93	150	150	0	0
Uranium Leasing	353	300	900	600	+200
Total, Albuquerque	$ 35,860	$ 48,000	$ 48,690	$ 690	+1

III. Performance Summary

FY 1995 Accomplishments

- Completed Hot Ponds Remediation (ITRI)
- Final Radiological Surveys completed on Hot Ponds (ITRI)
- Completed Final Risk Assessments on Hot Ponds (ITRI)
- Completed Lagoons excavation and received approval to ship to Envirocare (including Hot Ponds)
- The Citizens Advisory Board for ITRI held five meetings; CAB elected board officials in October.
- Provided potential responsible party (PRP) contribution for remediation of South Valley Superfund Site located in Albuquerque, New Mexico.
- Continued remediation of on-site contaminated material, and continued environmental monitoring for the GJPO Remedial Action Project (GJPORAP).
- Continued peripheral property remediation and completed final design for on-site repository for the Monticello Millsite Remedial Action Project.
- Performed environmental monitoring and implemented remedial investigation/feasibility study (RI/FS) work plan for the Monticello Surface and Ground Water Project.
- Completed designs for 11 properties and remediation of 81 properties for the Monticello Vicinity Properties Project.
- Inspected, monitored, and maintained Title I sites under the long-term S&M (LTSM) Program, and provide NEPA compliance for the Section 151(c) site.
- Performed routine and corrective maintenance and supported GJPO site management under the Landlord program.
- Continued to administer the Uranium Leasing Program.
- Performed independent verification for the GJPORAP and Monticello Projects.
- Completed site assessment for Oxnard, California facility.

ENVIRONMENTAL RESTORATION - NON-DEFENSE (Continued)

III. Performance Summary - Albuquerque (Continued)

FY 1996 Accomplishments (To Date and Planned)
- Complete cleanup at Oxnard, CA, site.
- Complete ITRI remediation; ship all waste.
- Provide the DOE PRP contribution for the remediation of the South Valley Superfund Site.
- Continue compliance activities required by three-party settlement agreements for the South Valley Superfund Site.
- Provide for overall program management support of Albuquerque Laboratory site activities.
- Complete on-site repository construction for the Monticello Mill Tailings.
- Complete 11 Vicinity Properties for the Monticello Remedial Action Program.
- Complete remedial actions on 6 buildings at the Grand Junction Project Office.

FY 1997 Planned Accomplishments

• Initiate tailings removal from the Monticello Mill Site	$ 26,569
• Prepare and submit draft RI/FS and interim ROD (sediment contamination) to EPA and state of Utah for Monticello Surface and Ground Water Project	1,133
• Continue remediation of designated vicinity and peripheral properties at Monticello	2,700
• Continue remediation of contamination at GJPO in Colorado	5,708
• Provide for GJPO Landlord, Long-Term Surveillance and Maintenance activities for closed sites, uranium leasing support, and other GJPO program activities	12,255
• Continue Program Management activities at ITRI	325
Total FY 1997, Albuquerque	$ 48,690

Explanation of Funding Changes FY 1996 to FY 1997:
- Efficiency in landlord activities at Grand Junction, resulting in increased D&D (+$690K)

Major Issues:
- None.

1878

ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

ALBUQUERQUE / UMTRA-SURFACE

I. Mission Supporting Goals and Objectives

Public Law 95-604, "The Uranium Mill Tailings Radiation Control Action of 1978," authorizes the Department to conduct a mill tailings stabilization and control program at 24 former uranium ore processing sites that are contaminated with tailings and other byproducts of uranium mining and milling operations and an estimated 5,000 associated vicinity properties which became contaminated by windblown waste or debris used in construction or landscaping. The UMTRAP is managed through the Albuquerque Operations Office and supports efforts in eleven states (Arizona, Colorado, Idaho, New Mexico, North Dakota, Oregon, Pennsylvania, South Dakota, Texas, Utah, and Wyoming) and with two Indian tribes. RA has been completed for 15 of the 24 former uranium ore processing sites. UMTRAP is a cost-shared project with the Federal Government paying 90 percent of the RA cost and the States paying 10 percent. When the sites are on Indian lands, the Department pays the entire cost of the remedial action.

The Uranium Mill Tailings Remedial Action Amendments Act of 1988 (P.L. 100-616) extended the Department's authority to conduct RAs at the designated sites through the end of FY 1994. Additional legislation extended that date to the end of FY 1996. Due to increased scope of regulatory requirements and the identification of additional vicinity properties associated with the Grand Junction processing site, the Department has submitted a request for extension of the authorization to the end of FY 1998. For additional details on schedules and other site-specific information, please refer to the UMTRAP Operating Expense Site Activity Description Sheet included with this budget request submission.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 83,900	$ 65,946	$ 42,967	$ -22,979	-35
Total, UMTRA-Surface	$ 83,900	$ 65,946	$ 42,967	$ -22,979	-35

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ENVIRONMENTAL RESTORATION - NON-DEFENSE (Continued)

III. Performance Summary - Albuquerque / UMTRA-Surface (Continued)

FY 1995 Accomplishments
- Continued RA at Rifle, CO (2 sites) Gunnison, CO and Phase I of Naturita.
- Initiated RA at Maybell, CO and Slick Rock, CO (2 sites).
- Completed RA at Ambrosia Lake, NM and Mexican Hat, UT.
- Continued surveillance certification and licensing activities.
- Completed RA at 72 vicinity properties (VPs).

FY 1996 Accomplishments (To Date and Planned)
- Complete RA at Gunnison, CO and Rifle, CO (2 sites).
- Continue RA at Maybell, Naturita, and Slick Rock, CO (2 sites).
- Continue surveillance, certification and licensing activities.
- Complete RA at 67 VPs.

FY 1997 Planned Accomplishments

• Complete RA at Maybell, Naturita, and Slick Rock, CO (2 sites)	$ 9,173
• Continue operations and maintenance activities at Grand Junction	6,097
• Continue surveillance, certification and licensing activities	13,697
• Complete RA at 6 VPs	4,000
• Allow additional VPs to be completed and schedules to be accelerated against slips at Maybell, Slick Rock, and Naturita, CO (2 sites)	10,000
Total FY 1997, UMTRA-Surface	$ 42,967

Explanation of Funding Changes FY 1996 to FY 1997:
- Reduced funding is in accordance with completion of this activity in FY 1998. $-23.0M

Major Issues:
- The Department has officially requested a two-year extension of the UMTRA - Surface activity legislation to extend the program through the end of fiscal year 1998. This is currently with House Committee on Commerce and passage is expected this session.

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ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

ALBUQUERQUE / UMTRA-GROUNDWATER

I. Mission Supporting Goals and Objectives

The UMTRA Ground Water Project will carryout additional characterization and compliance efforts, not covered by UMTRA-Surface, at 24 designated uranium mill tailings sites. Like UMTRA-Surface, the project was authorized by Public Law 95-604. Public Law 100-616 authorized an unlimited time period for conducting ground water compliance activities. The UMTRA Ground Water Project is managed through the Albuquerque Operations Office. Where RA activities are required for compliance, the Department will pay 90 percent of the costs; the States will pay 10 percent. When sites are on Indian lands, the Department is responsible for the entire cost of the compliance activity. For additional details on schedules and other site-specific information, please refer to the UMTRA Ground Water Project Operating Expense Site Activity Description Sheet included with this budget request submission.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 7,000	$ 7,800	$ 7,800	$ 0	0
Total, UMTRA Groundwater	$ 7,000	$ 7,800	$ 7,800	$ 0	0

III. Performance Summary

FY 1995 Accomplishments
- Draft Preliminary EIS (PEIS) completed.
- Conducted nine Public Hearings.
- Completed 16 Baseline Risk Assessments.
- Performed ground water monitoring at eight completed UMTRA Surface sites.
- Performed non-site specific activities including project management, project control, and facilities management.

FY 1996 Accomplishments (To Date and Planned)
- Final PEIS completed; published ROD.
- Complete Site Observational Work Plans (SOWP) for Canonsburg, PA, Grand Junction, CO, Rifle and Monument Valley, AZ.
- Complete SOWP at Ambrosia Lake, NM and Spook, WY and EAs at Spook, WY.
- Complete SOWPs for Falls City, TX , Riverton, WY, and Tuba City, AZ.
- Transition ground water project responsibility from Albuquerque Environmental Restoration Division to GJPO.

ENVIRONMENTAL RESTORATION - NON-DEFENSE (Continued)

III. Performance Summary - Albuquerque / UMTRA-Groundwater (Continued)

FY 1997 Planned Accomplishments	
• Complete RA plan for Ambrosia Lake, NM	$ 1,048
• Initiate SOWP at Green River, UT	516
• Continue SOWP at Canonsburg, PA; Durango, CO; Falls City, TX; Gunnison, CO; Grand Junction, CO; Lakeview, OR; Monument Valley, AZ; Rifle, CO (2 sites); Riverton, WY; Shiprock, NM; Tuba City, AZ; and Mexican Hat, UT.	6,236
Total FY 1997, UMTRA-Groundwater	$ 7,800

Explanation of Funding Changes FY 1996 to FY 1997:
- None.

Major Issues:
- None.

1882

CHICAGO

I. Mission Supporting Goals and Objectives

The ER program managed through the Chicago Operations Office supports activities at four sites in four states. These sites include ANL-E (Illinois), ANL-W (Idaho), Princeton Plasma Physics Laboratory (New Jersey), and BNL (New York).

The primary mission of the facilities under the Chicago Operations Office is research, development, and demonstration for DOE nuclear programs. This includes support of the nation's advanced reactor program and research on the fundamental properties of matter; physical, life, environmental sciences; magnetic confinement fusion and high-energy physics. By-products of this mission include transuranic waste, low-level waste, hazardous waste, and mixed waste (radioactive and hazardous combined). The Chicago Operations Office's facilities are aging, and many include former waste disposal sites that need to be assessed according to today's standards to determine the extent of environmental contamination.

The Chicago Operations Office manages, coordinates, tracks, and assists in the implementation of the environmental restoration program among the various sites. Other environmental restoration activities managed by Chicago include the management of AIPs with the State of New York. Major legal drivers include RCRA, CERCLA, State laws, and FFA's among DOE, EPA, and the State for BNL and ANL-W.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 17,293	$ 24,902	$ 27,753	$ +2,851	+11
Decontamination & Dismantlement	9,436	4,050	5,072	+1,022	+25
Long-Term S&M	34	34	30	-4	-12
Total, Chicago	$ 26,763	$ 28,986	$ 32,855	$ +3,869	+13

III. Performance Summary - Chicago (Continued)

FY 1995 Accomplishments

- Continued assessment activities required by FFA at BNL.
- Continued lime sludge removal and assessment activities; completed Map Tube and contaminated soil removal actions; and ground water barrier interim and began storage vault actions to assess and reduce risk and comply with RCRA at ANL-E.
- Continued Waste Area Group (WAG) 9 assessment to assess risk and comply with FFA at ANL-W.
- Continued assessment activities required by Memorandum of Understanding (MOU) at PPPL.
- Completed D-Tank removal action and continued removal actions for cesspools and groundwater project to reduce risk and comply with FFA at BNL.
- Completed D&D of the Experimental Boiling Water Reactor (EBWR), parts of the CP-5 Reactor, M-Wing Hot Cells, and decontamination and size reduction of 63 glove boxes at ANL-E to ensure worker safety and reduce environmental risk.
- Continued S&M to maintain contaminated facilities in a safe condition.
- Provided management, oversight, monitoring and technical support for all Chicago sites.

FY 1996 Accomplishments (To Date and Planned)

- Complete cesspool interim action, and cap on current landfill; continue interim action for ground water; begin capping former landfill drinking water hookups and removal of buried waste; and continue site-wide characterization activities to assess and reduce risk and comply with FFA at BNL.
- Complete assessment and begin design at the Central Steam Facility; continue assessment at the Sewage Treatment Plant and at the Waste Disposal Areas and Accidental Spill Sites; and begin assessment at the Graphite Research Reactor and Paint Shop/Old Firehouse to assess risk and comply with FFA at BNL.
- Continue lime sludge removal; complete storage vault interim action, sitewide closure of abandoned wells, and barrier to prevent contaminated ground water movement off site and continue assessment activities to assess and reduce risk, and comply with RCRA at ANL-E.
- Complete Burn Pit OU assessment and continue WAG 9 characterization to assess risk and comply with FFA at ANL-W.
- Continue characterization activities to assess risk and comply with MOU at PPPL.
- Complete transfer of 63 gloveboxes and M-Wing Hot Cell buildings to Landlord; continue D&D of the CP-5 Reactor and complete characterization of the Janus Reactor to reduce risk at ANL-E.
- Continue S&M to maintain contaminated facilities in a safe condition.
- Provide management, oversight, monitoring, and technical support for all Chicago sites.

FY 1997 Planned Accomplishments

- Complete construction for interim action for ground water project drinking water hookups, and capping former landfill; continue interim action for removal of buried waste; and continue site-wide characterization activities to assess and reduce risk and comply with FFA at BNL ..... $ 12,769
- Continue remedial design at the Central Steam Facility; complete assessment at the Sewage Treatment Plant and at the Waste Disposal Areas and Accidental Spill Sites; and continue assessment at the graphite Research Reactor and Paint Shop/Old Firehouse to assess risk and comply with FFA at BNL 7,231

1884

III. Performance Summary - Chicago (Continued)

FY 1997 Planned Accomplishments (Continued)

• Begin interim actions at two landfills and continue assessment activities to assess and reduce risk and comply with RCRA permit at ANL-E	3,107
• Begin and complete Industrial Waste System Removal and continue WAG 9 characterization to assess and reduce risk and comply with FFA at ANL-W.	1,718
• Complete characterization of Sites C&D and fund remediation of Sites A&B to assess and reduce risk and comply with MOU at a small site at PPPL	1,205
• Complete four D&D interim actions, complete final D&D of the Janus Reactor, and continue D&D of the CP-5 to reduce risk at ANL-E	5,069
• Provide management, oversight, monitoring, and technical support for all Chicago sites; provide for State oversight expenses; continue S&M to maintain contaminated facilities in a safe condition	1,756
Total FY 1997, Chicago	$ 32,855

Explanation of Funding Changes FY 1996 to FY 1997:

- Complete construction for interim action for groundwater project drinking water hookups at BNL.

Major Issues:

- None.

1885

OAKLAND

1. Mission Supporting Goals and Objectives

The ER Program managed through the Oakland Operations Office supports activities in the State of California at eight sites. These sites include Lawrence Berkeley National Laboratory (LBNL), Santa Susana Field Laboratory (SSFL)/Energy Technology Engineering Center (ETEC), General Electric Vallecitos Nuclear Center (GE), General Atomics (GA), Laboratory for Energy-Related Health Research (LEHR), Stanford Linear Accelerator Center (SLAC), the Geothermal Test Facility (GTF), and the Oakland Operations Office.

LBNL consists of a 130-acre facility and is located adjacent to the University of California in Berkeley. LBNL conducts a wide variety of energy-related research activities for the Department, including energy, environment, physics, transportation, computers, biology, and medicine. Past practices have left radioactive and hazardous contaminants in the soil and ground water. There have been 136 release sites identified at the LBNL site of which 104 have received a no further Investigation Status. ER activities at LBNL primarily focus on characterization and remediation of heavy metals and solvent-contaminated soil and ground water at the remaining 32 release sites and the RCRA closure of an existing Hazardous Waste Handling Facility (HWHF).

SSFL is a 2,700 acre site located in Simi Valley, California, and is owned and operated by Rockwell International (RI). Approximately 90 acres of the site has been furnished to the Department by Rockwell for the ETEC. ETEC has provided management, engineering, and project oversight on a wide range of Departmental programs involving the testing of nonradioactive components. Major environmental restoration focus will be on ground water assessments and cleanup, within Area IV; remediation of RCRA Facility Assessment identified Solid Waste Management Units (SWMUs); and cleanup of DOE-owned facilities located in Area IV. These facilities must be decontaminated for eventual release of the facility for unrestricted use.

The GE site is privately-owned and is located in Pleasanton, California. Environmental restoration activities will focus on cleanup of a High Level Hot Cell constructed in 1958 for post-irradiation examination of uranium fuel and irradiated reactor components and Glove Box Enclosure installed in 1968 for emission spectrograph analysis of uranium, both supporting primarily Government-funded nuclear programs.

The GA site is privately-owned and is located near San Diego. This site maintained and operated a hot cell facility for over 30 years, primarily to conduct Government-funded nuclear research and development. Environmental restoration efforts will primarily focus on cleanup of the Hot Cell Facility. Following cleanup, the facility will be released by NRC for unrestricted use.

The LEHR site is located at the University of California, Davis. Research at the laboratory originally focused on the health effects from chronic exposures to radionuclides using animal subjects to simulate radiation effects on humans. DOE terminated the research program and closed the laboratory in 1988. Environmental restoration activities focus on cleaning up DOE areas of site contamination for release to the University of California, Davis, without radiological restrictions.

ENVIRONMENTAL RESTORATION - NON-DEFENSE (Continued)

I. Mission Supporting Goals and Objectives - Oakland (Continued)

The SLAC, a 426-acre site managed under contract between the Department and Stanford University, conducts theoretical research in high-energy particle physics. Due to routine maintenance operations associated with the accelerator, certain hazardous waste streams have developed including waste oils, waste solvents, polychlorinated-biphenyl-contaminated (PCB) oils, aqueous metals, and wastewater treatment sludge. Environmental restoration efforts focus on cleanup of numerous PCB-contaminated soil sites and several solvent-contaminated ground water sites. Eight release sites have been identified at SLAC.

The Geothermal Test Facility (GTF) is an 82 acre site located 20 miles east of El Centro, California. The site was formerly used by the Department of Energy (DOE) to perform studies for geothermal power. The site lies on property owned by the Bureau of Land Management over which the DOE has a right-of-way agreement. The facility and cleanup responsibility is for the removal of approximately 1200 cubic yards of brine salts (arsenic contamination) from a one acre brine pond. A work order issued by the California RWQB requires remediation of the site by DOE.

The Oakland Operations Office manages, coordinates, tracks, and assists in the implementation of the ER Program among the multiple sites. In addition, the Oakland Operations Office manages and implements grants for the State of California oversight activities. Major legal drivers at Oakland sites include RCRA, Toxic Substances Control Act, California Porter-Cologne Act, and the Clean Water Act.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 10,741	$ 11,343	$ 10,503	$ -840	-7
Decontamination & Dismantlement	2,836	5,214	6,522	+1,308	+25
Total, Oakland	$ 13,577	$ 16,557	$ 17,025	$ 468	+3

III. Performance Summary

FY 1995 Accomplishments

- Continued CERCLA RI/Field activities at LEHR.
- Conducted Phase II RFI activities, completed Phase III RFI Work Plan and continued interim ground water treatment, initiated Phase I CMS, and conducted treatability studies for remediation of soil and ground water required by RCRA Permit at LBNL.
- Continued site-wide soil/surface water investigation field work and site-wide ground water investigations. Completed removal of PCB contaminated soils for the power supply and IR-6 drainage channel at SLAC.
- Completed Imhoff facility demolition, Cobalt-60 Facility and Tank Trailer D&D at LEHR.
- Issued project Statement of Work and received GE proposal. Contract negotiations initiated in late FY 1995.
- Completed independent verification of the former Sodium Disposal Facility and Buildings 064, 005 and 023 at SSFL.

III. Performance Summary

FY 1995 Accomplishments - Oakland (Continued)
- Continued D&D/S&M activities at Building 024 and Radioactive Materials Disposal Facility (RMDF), and ground water monitoring; completed decontamination of Building 012, and completed D&D of surplus moderator cask at ETEC.
- Completed site and facility characterization, completed final Environmental Assessment to D&D Hot Cell Facility, issued draft final D&D work plan to the State, shipped pre-D&D low-level and mixed LLW to Hanford, transferred irradiated fuel from the HCF to Building 30 (on site) for interim storage, and retained experienced staff at GA.
- Provided contractual project management support services to Oakland and payments for State grants.

FY 1996 Accomplishments (To Date and Planned)
- Complete Draft Corrective Measure Plan, and HWHF Work Plan; begin closure of HWHF; and continue interim water treatment, program management operations, data management, and sampling.
- Conduct required remedial investigations and ground water monitoring (Regional Water Quality Control Board Order), well inspection and maintenance, cursory review of ground water remedial alternatives, and provide for program management activities at SLAC.
- Continue ground water and environmental compliance monitoring, and complete site-wide soil radiation characterization report at ETEC.
- Initiate disposal of RI derived waste, prepare RI report and draft FS, prepare work plan and conduct readiness review and mobilization for Dog Pen Area and removal action, prepare final survey report for Cobalt 60 building at LEHR.
- Continue D&D/S&M activities at Building 024 and RMDF, initiate Large Leak Test Reactor D&D and continue D&D ongoing activities at SSFL.
- Complete Building 012 D&D final survey and independent verification and continue BO24 S&M at ETEC.
- Provide for required environmental, health and safety, S&M, and program management activities for the D&D of the GA Hot Cell Facility; continue to clean, decontaminate and ship D&D generated low level/mixed low level waste to Hanford.
- Provide required contractual project management for State grants.
- Initiate RWQCB required cleanup of GTF brine pond.
- Complete draft certification docket (from project closeout) for ETEC facilities 005, 023, 028, 029, 030, and 654.

FY 1997 Planned Accomplishments

• Continue interim actions for soil and ground water; continue HWHF closure, interim groundwater treatment; and perform program management at LBL	$ 3,676
• Conduct soil and ground water assessment activities and associated program management in accordance with small site initiative at SLAC	995

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III. Performance Summary - Oakland (Continued)

FY 1997 Planned Accomplishments (Continued)	
• Continue environmental monitoring, prepare RCRA CMS for B056 landfill cleanup, initiate operations of an enhanced system for removal of trichloroethylene/TCA from ground water, continue operation of interim ground water treatment system at ETEC	1,100
• Complete planning activities and long lead procurements for RMDF and initiate D&D: complete D&D of Large Leak Test Reactor (B059) and Liquid Metal Development Lab 2 (B057), and initiate removal of limited quantities of LLW from RMDF B022 (stakeholder concern) at ETEC	2,113
• Remove, transfer or dispose of 1300 Ci Co-60 source, continue environmental monitoring, continue CERCLA/NCP remediation of DOE Areas and dispose of restoration activity waste	4,380
• Continue minimally required S&M and begin minor characterization of Alpha Cell #4 and the glovebox enclosure at GE	105
• Continue D&D at the GA Hot Cell Facility and ship generated waste off-site under the SSI Program	3,600
• Complete Brine Pond removal action at the Geothermal Test Facility (GTF)	100
• Provide direct contractor support to the Oakland Operations Office for cost estimating, reporting, and technical review and provide funding for State of California for oversight activities	956
Total FY 1997, Oakland	$ 17,025

Explanation of Funding Changes FY 1996 to FY 1997:
- None.

Major Issues:
- None.

1889

OAK RIDGE

I. Mission Supporting Goals and Objectives

The ER Program managed through the Oak Ridge Operations Office consists of three sites in two states. These are Oak Ridge National Laboratory (ORNL) (Tennessee), Weldon Spring (Missouri), and the Oak Ridge Operations Office site (Tennessee).

ORNL is located on the Oak Ridge Reservation (ORR) which consists of three sites; K-25, Y-12, and ORNL. However, only ORNL is split-funded between the Defense and Non-Defense appropriations, based on prior year activity at these sites. The ORR covers approximately 37,000 acres of Oak Ridge, Tennessee and was placed on the NPL in 1989. During its 50 years of operation, portions of ORR have become contaminated with radioactive elements.

The Oak Ridge Operations Office manages, coordinates, tracks, and assists in the implementation of the ER program among the various sites.

ORNL is approximately 2,900 acres and is located about 10 miles southwest of Oak Ridge, Tennessee. ORNL is divided into 20 WAGs. The types of contamination include low-level radioactive material, organic solvents, corrosive wastes, PCBs, and heavy metals.

Weldon Spring is a surplus facility on the NPL to be remediated per NEPA/CERCLA requirements. The site in located in St. Charles County, Missouri, about 30 miles west of St. Louis, on land formerly used by the Department of the Army as a trinitrotoluene and initrotoluene ordnance works. The site consists of a nine-acre abandoned limestone quarry; a 51-acre raffinate disposal area; and a 169-acre uranium feed materials plant. This is a jointly-funded project with the Department of the Army.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 81,578	$ 83,497	$ 96,142	$ 12,645	+15
Compliance	0	892	0	-892	-100
Decontamination & Dismantlement	11,830	10,300	13,370	3,070	+30
Total, Oak Ridge	$ 93,408	$ 94,689	$ 109,512	$ 14,823	+16

1890

III. Performance Summary - Oak Ridge (Continued)

FY 1995 Accomplishments

- Completed two assessments, the Solid Waste Storage Area 4 Ground Water Seeps and the North and South Tank Farms Treatability Study, at ORNL.
- Completed three interim actions including WAG 1 Core Hole 8, Molten Salt Reactor Experiment (MSRE) isolation of auxiliary charcoal bed cell, and the MSRE purge and trap system at ORNL.
- Completed two remedial actions including WAG 6 Tumulus Pad Closure and WAG 6 Monitoring Stations construction.
- Conducted WAG 10 site characterization summary report at ORNL.
- Provided cross-cutting program management support at ORR.
- Continued operation of the Quarry and Site water treatment plants and continued construction of the Site water treatment plant train 2 at Weldon Spring Site.
- Completed Weldon Spring quarry bulk waste removal.
- Completed dismantling of Chemical Plant Buildings at the Weldon Spring Site.
- Continued efforts on the Quarry Residuals RI/FS and Ground Water RI/FS at the Weldon Spring Site.
- Completed construction and began operation of Chemical Stabilization/Solidification pilot facility at Weldon Spring Site.
- Continued operation of the Temporary Storage Area and the Material Staging Area at the Weldon Spring Site.
- Completed design for Chemical Plant building foundation removal at the Weldon Spring Site.
- Began detailed design for full scale Chemical Stabilization/Solidification (CSS) Facility, Weldon Spring Site.
- Started and completed Raffinate Pit Debris Characterization at the Weldon Spring Site.
- Continued to provide for environment, health, and safety activities at the Weldon Spring Site.
- Initiated construction of site drainage control facilities at the Weldon Spring Site.
- Completed design and initiated construction of contractor material staging area at the Weldon Spring Site.
- Began construction of soil borrow area for the Weldon Spring Site.

FY 1996 Accomplishments (To Date and Planned)

- Complete two assessments, action memorandums for WAG 5 Old Hydrofracture Tanks and MSRE Uranium Deposit removal at ORNL.
- Complete the MSRE off-gas system partitioning interim action at ORNL.
- Complete WAG 7 Pit 1 ISV remedial action at ORNL.
- Complete one D&D, the Waste Evaporator Facility Demolition, at ORNL.
- Complete ORNL WAG I Inactive Tank content removal.
- Provide cross-cutting program management support to the ORR.
- Complete construction of soil borrow area for the Weldon Spring Site.
- Begin removal of Chemical Plant building foundations at the Weldon Spring Site.
- Complete construction of site drainage control facilities at the Weldon Spring Site.
- Complete design of the full-scale CSS facility and purchase long lead equipment at the Weldon Spring Site.
- Complete design for construction and waste placement of the site disposal facility at the Weldon Spring Site.
- Complete construction of the contractor material staging area at the Weldon Spring Site.
- Complete construction of soil borrow area haul road at the Weldon Spring Site

III. Performance Summary - Oak Ridge (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)

- Continue to provide for environment, safety, and health activities at the Weldon Spring Site.
- Continue operation of the Temporary Storage Area and Materials Staging Area at the Weldon Spring Site.
- Continue efforts on the Quarry Residuals RI/FS and ground water RI/FS at the Weldon Spring Site.
- Continue operation of the Quarry and Site water treatment plants at the Weldon Spring Site.
- Complete construction of the Site Water Treatment plant train 2 at the Weldon Spring Site.
- Complete consolidation of Raffinate Pit debris at the Weldon Spring Site.

FY 1997 Planned Accomplishments

• Conduct assessment and characterization activities for North and South Tank Farms, initiate Surface Impoundments Remedial Design, construction for inactive tanks and tank content removal, complete interim remedial action of WAG 4 seeps Alternative, and continue MSRE D&D	$ 35,900
• Provide cross-cutting support for Oak Ridge site-wide D&D programs	6,112
• Begin operation of soil borrow area at the Weldon Spring site	400
• Begin construction of full-scale CSS treatment facility at the Weldon Spring site	6,500
• Begin design for remediation of vicinity properties at the Weldon Spring site	1,800
• Complete removal of Chemical Plant Building foundations at the Weldon Spring site	5,100
• Continue operation of Temporary Storage Area and Material Staging Area at the Weldon Spring site	500
• Continue to provide required environmental, safety, and health activities at the Weldon Spring site	32,900
• Continue operation of the Quarry and Site Water treatment plants	4,100
• Continue efforts on the Quarry Residuals RI/FS and ground water RI/FS at the Weldon Spring site	1,500
• Begin construction of site disposal facility at the Weldon Spring Site	14,700
Total FY 1997, Oak Ridge	$ 109,512

Explanation of Funding Changes FY 1996 to FY 1997:

- Increased site wide remediation and building demolition at the Weldon Spring Site and D&D activities at the Molton Salt Reactor Experiment at ORNL. $+14.8M

Major Issues:

- None.

1892

ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

OAK RIDGE / FUSRAP

I. Mission Supporting Goals and Objectives

The site identification and assessment program initiated by the Atomic Energy Commission in 1974, is being continued under the Formerly Utilized Sites Remedial Action Program (FUSRAP), to identify sites where radioactive contamination remains from early years of the Nation's atomic energy program. Following a determination that there is authority to conduct remedial action under the Atomic Energy Act of 1954, as amended, sites so identified are formally included for RA under the ER Program through FUSRAP.

FUSRAP, which currently includes 46 sites in 14 states, is managed through the Oak Ridge Operations Office. Program objectives are to identify, clean up, or otherwise control sites, that are DOE-owned or DOE-leased and at privately owned, where radioactive contamination remains from early years of the Nation's atomic energy program or from commercial operations that Congress authorized DOE to remedy. Of the 46 FUSRAP sites, 40 are Manhattan Engineering District or Atomic Energy Commission sites that are included in the Program. The other six sites were added by Congressional action in 1984 and 1985. Six of the FUSRAP sites are listed on the NPL. The 46 FUSRAP sites are grouped in four state groupings 1) Missouri, 2) New Jersey, 3) New York, and 4) Others. For additional details on schedules and other site-specific information, please refer to the FUSRAP Operating Expense Funded Data Sheet included with this budget request submission.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 74,100	$ 73,982	$ 83,079	$ 9,097	+12
Total, Oak Ridge FUSRAP	$ 74,100	$ 73,982	$ 83,079	$ 9,097	+12

III. Performance Summary

FY 1995 Accomplishments

- Continued ROD development for the Tonawanda, NY; the Wayne, NJ; the Maywood, NJ; and the St. Louis, Missouri sites.
- Completed Colonie, NY building decontamination and demolition (interim action).
- Completed Pile Removal (Phase B) at Maywood, NJ site (interim action).
- Initiated Middlesex Sampling Plant, NJ site EE/CA-EA.
- Completed building decontamination at Wayne, NJ site.
- Completed six residential vicinity property remedial actions at St. Louis, MO site.
- Performed interim remedial actions along haul roads at the St. Louis, MO site.
- Completed waste pile removal at two industrial vicinity properties at the St. Louis, MO site.

III. Performance Summary - Oak Ridge / FUSRAP (Continued)

FY 1995 Accomplishments (Continued)

- Mobilized for pile removal activities at the Wayne, NJ site.
- Issued final EE/CA for Pile Removal at Wayne.
- Started evaluation of treatment technologies for in-situ waste at FUSRAP sites.
- Continued S&M activities at Maywood, Wayne, Middlesex, and New Brunswick, NJ sites; St. Louis, MO sites; and Niagara Falls Storage Site, NY.
- Completed EE/CA at the Ventron, MA site.
- Completed Preliminary Remedial Action Report (PRAR) and certification docket for the Aliquippa Forge, PA site.
- Completed remedial action at six FUSRAP sites: the General Motors, MI; the Associate Aircraft, OH; the HHM Safe Co., OH; the Alba Craft, OH; the C.H. Schnoor, PA; and the Chapman Valve, MA sites.

FY 1996 Accomplishments (To Date and Planned)

- Initiate and complete Phase A pile removal at the Wayne, NJ site (interim action).
- Initiate pile removal (Phase C) at the Maywood, NJ site (interim action).
- Continue support of removal actions at St. Louis Downtown Site, MO.
- Initiate and complete decontamination activities on three buildings; demolish and dispose of one building at Linde, NY (Tonawanda Sites).
- Initiate pile removal activities at Linde, NY (Tonawanda sites).
- Begin preliminary scope and characterization for the B & T Metals, OH site.
- Write characterization plan and begin characterization at the Luckey, OH site.
- Complete the Preliminary Remedial Action Report (PRAR) and start certification docket preparation for the General Motors, MI site.
- Complete PRAR for the Associate Aircraft, OH; Alba Craft, OH; and C.H. Schnoor, PA sites.
- Complete characterization at Ashland 1 and Ashland 2, NY sites.
- Begin design at the Ventron, MA site.
- Provide for program support from ORNL, Institute of Science and Engineering, and ANL.
- Continue Middlesex, NJ site EE/CA-EA.
- Continue pile removal activities at Wayne, NJ site.
- Continue S&M activities at Maywood, Wayne, Middlesex, and New Brunswick, NJ sites; St. Louis, MO sites; and Niagara Falls Storage Site, NY.
- Complete remedial action at New Brunswick, NJ site.

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III. Performance Summary - Oak Ridge / FUSRAP (Continued)

FY 1997 Planned Accomplishments	
• Continue remedial action at Colonie, NY site	$ 22,256
• Complete remedial action of B&L Steel, NY site	2,420
• Complete certification packet for the Niagara Falls Storage Site (NFSS), NY site	823
• Complete Phase D pile removal at the Maywood, NJ site (Interim Action)	10,817
• Complete Phase B pile removal at the Wayne, NJ site (Interim Action)	6,080
• Initiate vicinity property remedial action at the Maywood, NJ sites (Interim Action)	5,998
• Continue environmental surveillance for Maywood, Wayne, Middlesex, and New Brunswick, NJ sites; the St. Louis, MO sites; and the NFSS, NY site	2,354
• Continue remedial action at Ventron, MA site	4,264
• Continue remedial action at the St. Louis, MO sites (Interim Action)	15,000
• Complete EE/CA and hazard assessment at the Shpack, MA site	185
• Initiate site characterization at the CE, CT site	3,673
• Complete characterization of the Luckey and Painesville, OH sites	4,692
• Continue Interim Action at Tonawanda Site (NY Sites)	4,517
Total FY 1997, FUSRAP	$ 83,079

Explanation of Funding Changes FY 1996 to FY 1997:
- Completion of remedial actions at NY and NJ sites; increased remedial actions at various sites. $+9.1M

Major Issues:
- None.

1895

ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

OHIO

I. Mission Supporting Goals and Objectives

The ER Program, managed through the Ohio Operations Office, supports Battelle Columbus Laboratory (BCL) activities in the State of Ohio.

The BCL site is located in Columbus, Ohio. Research and development work was performed at its facilities for the Department and its predecessors. The buildings are privately owned by Battelle and the facility retains an active NRC license for possession of special nuclear material. Fifteen buildings, or portions thereof, are radioactively-contaminated.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	100	100	0	-100	-100
Decontamination & Dismantlement	$ 16,807	$ 11,568	$ 3,500	$ -8,068	-70
Total, Ohio	$ 16,907	$ 11,668	$ 3,500	$ -8,168	-70

III. Performance Summary

FY 1995 Accomplishments

- Completed D&D of Building KA-4; continued D&D of Building KA-5; and initiated D&D at KA-1 at BCL.
- Provided for low-level waste (LLW) shipments to an approved DOE site to reduce risk of further site contamination, and maintained waste minimization activities at BCL.

FY 1996 Accomplishments (To Date and Planned)

- Complete D&D of six buildings and return King Avenue property to private owner to maintain compliance with NRC license requirements and DOE contractual agreement at BCL.

ENVIRONMENTAL RESTORATION - NON-DEFENSE (Continued)

III. Performance Summary - Ohio (Continued)

FY 1997 Planned Accomplishments	
• Provide core S&M activities at the BCL West Jefferson facilities, to include: hazard control and stabilization, inspection and maintenance of facility systems and equipment, emergency call outs, industrial safety and industrial hygiene monitoring and oversight, and radiation monitoring and surveillance of the S&M work. In addition, compliance with NRC emergency preparedness regulation will be met with small scope drill exercises	3,000
• Provide Environmental Monitoring and Surveillance at the BCL West Jefferson site, to include: collection of required samples (air, water, soil, sediment, crops, etc.) from on-site and off-site locations to assure all discharges and releases are in compliance with regulatory requirements, calibration and maintenance of environmental radiation monitoring instrumentation, evaluation of data from lab analysis of samples, and record keeping an reporting functions	500
Total FY 1997, Ohio	$ 3,500

Explanation of Funding Changes FY 1996 to FY 1997:
- Movement from D&D to S&M phase at BCL. $-8.1M

Major Issues:
- None.

1897

ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

SAVANNAH RIVER

I. Mission Supporting Goals and Objectives

The site is located in south-central South Carolina and is bordered on the southwestern side by the Savannah River. The closest major population centers are Aiken, South Carolina and Augusta, Georgia. The ER Program is responsible for all aspects of assessment and remediation of facilities and sites that are no longer a part of active operations.

The Heavy Water Component Test Reactor (HWCTR) facility was deactivated in 1963. Ancillary building and equipment were removed in 1994. NEPA documentation, asbestos removal and D&D began in 1995. The deactivated reactor is currently scheduled for D&D surveillance and maintenance (S&M) activities and will continue until completion of the D&D.

Primary on-site contaminants include various nuclides (particularly plutonium, tritium, and uranium), volatile organic compounds, heavy metals, and solvents. Legal drivers for activities conducted at SRS include RCRA, CERCLA, and the site FFA (August, 1993) and various settlement agreements.

1998

ENVIRONMENTAL RESTORATION - NON-DEFENSE (Continued)

II. Funding Schedule - Savannah River (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Decontamination & Dismantlement	$ 292	$ 4,300	$ 4,300	$ 0	0
Total, Savannah River	$ 292	$ 4,300	$ 4,300	$ 0	0

III. Performance Summary

FY 1995 Accomplishments
- Performed surveillance and maintenance of the Heavy Water Component Test Reactor (HWCTR).

FY 1996 Accomplishments (To Date and Planned)
- Complete characterization, initiate D&D engineering design, and continue S&M of the HWCTR.

FY 1997 Planned Accomplishments

• Continue S&M of the HWCTR	$ 300
• Complete D&D engineering design and initiate D&D of the HWCTR	4,000
Total FY 1997, Savannah River	$ 4,300

Explanation of Funding Changes FY 1996 to FY 1997:
- None.

Major Issues:
- None.

1899

ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

HEADQUARTERS

I. Mission Supporting Goals and Objectives

Activities managed through Headquarters include the management, coordination, tracking, and implementation of the ER program among the multitude of sites through the DOE complex. These activities include technical support and cooperative agreements.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 34,589	$ 9,449	$ 8,511	$ -938	-10
Total, Headquarters	$ 34,589	$ 9,449	$ 8,511	$ -938	-10

III. Performance Summary

FY 1995 Accomplishments

- Provided technical support to ER in the areas of document review, program integration, and other crosscutting areas.
- Provided support to the Universities Robotics activities.
- Provided for Cooperative Agreement with National Academy of Sciences on Radioactive Waste Management.
- Provided support for the Residual Radioactive Code Development (RESRAD) activities.

FY 1996 Accomplishments (To Date and Planned)

- Provide technical support to the Office of Environmental Restoration in the area of document review, program integration, and other crosscutting areas.
- Provide for Cooperative Agreement with National Academy of Sciences on Radioactive Waste Management.
- Provide assistance on specific technical topics and programmatic assistance for performance and technical reviews.
- Provided support for the Residual Radioactive Code Development (RESRAD) activities.

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FY 1997 Planned Accomplishments - Headquarters (Continued)

• Provide technical support to the Office of Environmental Restoration in the areas of document review, program integration and other crosscutting areas	$ 4,011
• Provide technical support to Residual Radioactive Code Development (RESRAD) activities	500
• Support Cooperative Agreement with National Academy of Sciences on Radioactive Waste Management	2,000
• Provide assistance on specific technical topics and programmatic assistance for performance and technical reviews	2,000
Total FY 1997, Headquarters	$ 8,511

Explanation of Funding Changes FY 1996 to FY 1997:
- None.

Major Issues:
- None.

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Obligations in Thousands)

PROGRAM OBJECT CLASS SUMMARY

Environmental Restoration

	FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997
Personnel Compensation:					
25.4 Operation & Maintenance of Facilities	$386,396	$387,370	$361,377	$362,438	$358,239
99.9 Total	$386,396	$387,370	$361,377	$362,438	$358,239

1902

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ENVIRONMENTAL MANAGEMENT

PROJECT DATA SHEETS

TABLE OF CONTENTS

NOTE: Projects previously listed in this budget section that are jointly Defense and Non-Defense funded are now included the Defense Environmental Restoration and Waste Management Budget and have a "D/ND" project designation.

Energy Supply Research and Development

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars).

1. Title and location of project: Uranium Mill Tailings Remedial Action (UMTRA) - Surface Project
24 Designated Sites

2a. Project No. N-1.4.4

2b. Operating Expense Funded

3a. Date assessment phase initiated: 1st Qtr, FY 1980

3b. Duration of assessment phase: 174 months

5. Previous cost estimate:

Total Estimated Cost (TEC):	See TPC
Total Project Cost (TPC):	DOE $1,372,082
	State 99,520
	$1,471,602

4a. Date remediation phase initiated: 1st Qtr, FY 1983

4b. Date remediation phase ends: 4th Qtr. FY 1998

6. Current cost estimate: (through completion)

TEC:	See TPC
TPC:	DOE $1,388,371
	State 100,270
	$1,488,641

7. Financial Schedule a/
Non-Defense Funded Only

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
Previous Years	$1,160,672	0	$ 1,160,672	$1,151,079
FY 1995	83,900	0	83,900	81,875
FY 1996	65,946	0	65,946	71,359
FY 1997	42,967	0	42,967	45,238
FY 1998	34,886	0	34,886	35,714
FY 1999	0	0	0	0
FY 2000	0	0	0	0
FY 2001	0	0	0	0

a/ only DOE share.

1004

1. Title and location of project:	Uranium Mill Tailings Remedial Action - Surface Project 24 Designated Sites	2a. Project No. N-1.4.4
		2b. Operating Expense Funded

8. Project Description, Justification and Scope

The UMTRA-Surface Project stabilizes and controls uranium mill tailings from 24 inactive processing sites and associated vicinity properties where tailings were used in the foundations of inhabited or commercial buildings or where tailings blew into open land surrounding the mill sites. The sand-like tailings are the result of uranium production from the early 1950s until the early 1970s. The UMTRA-Surface Project disposes of the tailings in a safe and environmentally-sound manner. Congressional authorization for surface tailings remediation expires in September 1996; however, legislation will be presented to Congress to extend the date to September 1998. The Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 provides for the States to fund 10 percent of the remedial action costs at sites within the State (except on Indian lands), while the Department of Energy (DOE) Office of Environmental Management funds the remaining 90 percent. The DOE funds 100 percent of remedial action costs at sites on Indian lands.

Tailings remediation of each site includes a Remedial Action Plan (RAP) approved by the Nuclear Regulatory Commission (NRC) with the participation of the affected State/Tribe, an Environmental Assessment or Environmental Impact Statement, design/engineering, construction, prelicensing custodial care (PLCC), and licensing by the NRC. The hazards which these projects are designed to remediate include: (1) radon gas (Ra 222), (2) gamma radiation decay products (Pb 214 and Bi 214), (3) asbestos and other hazardous and mixed organic wastes at mill sites, and (4) Resource Conservation and Recovery Act (RCRA) listed constituents in ground water plus molybdenum, radium, uranium, selenium, and nitrates.

Belfield/Bowman, ND - ALUM 1325

This subproject involves the cleanup of approximately 158,000 cubic yards of contaminated material. Of the tailings to be handled, approximately 58,000 cubic yards will originate from the Belfield Site and be transported 70 miles for disposal at the Bowman Site. Concurrent with site remediation, nine vicinity properties will be remediated. National Environmental Policy Act (NEPA) documentation will be completed in FY 1996. Site and vicinity property remedial action will begin in FY 1996 and complete in early FY 1997. The Bowman site will be licensed by the NRC in FY 1998 and transferred to the Long-Term Surveillance and Maintenance (LTS&M) Program in FY 1998. The State of North Dakota has requested the site be removed from UMTRCA designation. Currently all work is suspended and funding removed from the DOE budget request

Grand Junction, CO - ALUM 1332

Previous TPC of $517,151,000 was reduced due to a reassessment of anticipated additional vicinity properties requiring remediation in the outyears, a decrease in the costs associated with the operations and maintenance of the Cheney disposal cell, lower negotiated costs for Department of Transportation/Occupational Safety and Health Act (OSHA) compliance and less material and final estimated material quantities for the Cheney disposal cell.

1995

1. Title and location of project:	Uranium Mill Tailings Remedial Action - Surface Project 24 Designated Sites	2a. Project No. N-1.4.4 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The processing site remedial action was 100% complete at this site with 4,653,826 cubic yards of contaminated material relocated to the Cheney disposal cell at the end of FY 1994. Radon barrier and rock cover, amounting to 264,580 cubic yards, was placed on the side slopes of the disposal cell through September 1994. Since the Cheney disposal cell will remain open until FY 1998 to accept anticipated additional contaminated material, an opening has been left to accept up to 500,000 cubic yards of tailings. Work was initiated at the commingled waste vicinity properties in late FY 1995 and will continue through FY 1997. Approximately 3,891 vicinity properties were completed by September 1995. Remediation of non-commingled waste vicinity properties will continue through FY 1998, with the direct transport of vicinity property tailings to the Cheney disposal cell completing in FY 1998; vicinity property reconstruction continuing through FY 1998; and the disposal cell completing in FY 1998. This assumes that the Project will be extended by Congress to accept additional vicinity property material beyond the end date of FY 1996. A Long-Term Radon Management Program is being considered which will allow a local and State government to manage and transport vicinity property material to the Cheney Cell. Under this Program, DOE would dispose of the material at the Cheney Disposal Cell.

Gunnison, CO - ALUM 1337

This subproject involves the cleanup of approximately 843,000 cubic yards of residual radioactive material (RRM) and other contaminants. The contaminated material will be relocated to a disposal cell in the vicinity of the County Landfill, approximately eight miles from the processing site. Concurrent with the remedial action at the processing site, 12 vicinity properties will be remediated. By September 1995 site remedial action was 99% complete. Site construction will be completed in early FY 1996 to include completion of corrosion protection material, site restoration, and demobilization. By the end of the first quarter of FY 1996, a total of 903,127 cubic yards of contaminated material will be encapsulated at the off-site disposal site, to be followed in FY 1996 by initiation of the completion report, long-term surveillance plan and PLCC. Leasing will be completed in FY 1997 with transfer to the LTS&M Program in FY 1998.

Maybell, CO - ALUM 1344

This subproject involves the cleanup of approximately 3.2 million cubic yards of contaminated material. Stabilization on site is the selected remediation option and 660,000 cubic yards of contaminated material will be moved for consolidation in the disposal cell at the processing site. Concurrent with remediation activities at the processing site vicinity properties will be remediated.

Site environmental documentation and the RAP were completed in FY 1995. The Project initiated and completed 40% of site remedial action and all six vicinity property remedial actions in FY 1995. In FY 1996, 90% of site remedial actions will be completed. Site construction will be completed in early FY 1997 and will include placement of 160,000 cubic yards of radon barrier material. The start and completion of site remedial action is one year earlier than it was for the FY 1995 Congressional Budget since re-evaluation of Project funding indicated that there would be sufficient funding in FY 1995 to begin construction, continue construction in FY 1996, and complete construction in early FY 1997.

1. Title and location of project:	Uranium Mill Tailings Remedial Action - Surface Project 24 Designated Sites	2a. Project No. N-1.4.4
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Naturita, CO - ALUM 1351

This subproject involves the cleanup of approximately 582,000 cubic yards of RRM. They will be relocated to the disposal site at Uravan, Colorado. Concurrent with site remedial action, 21 vicinity properties will be remediated. Once remediation is completed, activities will be initiated to certify and license the site. The previous TPC of $45,614,000 increased due to delays in determining the disposal location and increased costs of the Uravan Disposal Cell. In addition three new complex vicinity properties were added and others were reclassified resulting in additional costs for the vicinity properties. Site environmental documentation and the remedial action plan were also completed. Phase I (demolition) was completed, and Phase II initiated. In FY 1996, tailings haul will commence and be completed. Site construction will be completed in FY 1997 as well as the completion report, long-term surveillance plan, and PLCC. Site licensing will occur in FY 1998. No tailings were hauled in FY 1995; construction was limited to site preparation and county road upgrades.

Rifle, CO - ALUM 1354

This subproject involves the cleanup of approximately 4.1 million cubic yards of contaminated material at two sites, Old and New Rifle. The material will be relocated by truck to the disposal cell (Estes Gulch). Concurrent with remediation activities at the processing site, 96 vicinity properties will be remediated. Once remediation is complete, activities will be initiated to certify and license the site.

The site is currently undergoing remedial action and was 92% completed by the end of FY 1995. Approximately 4 million cubic yards had been relocated to Estates Gulch. Site remedial action will be 100% complete by the 3rd quarter of FY 1996. Activities in FY 1997 will include completion of the completion report, PLCC and the long-term surveillance plan. Site licensing will occur in FY 1998 and the site will be transferred to the LTS&M Program in FY 1998.

Slick Rock, CO - ALUM 1361

The previous TPC of $34,714,000 increased due to a change in the cell design which required additional rock excavation from the cell foundation.

This subproject involves cleanup of approximately 1.4 million cubic yards of contaminated material which will be relocated to a disposal cell in Burro Canyon, CO. Concurrent with remediation activities at the processing site, five vicinity properties will be remediated.

Site environmental documentation and the RAP were completed in FY 1995. Site and vicinity property remedial action were initiated, and site remedial action was 67% complete in FY 1995. In FY 1996, 35,200 cubic yards of radon barrier will be placed. The site construction will be complete by the first quarter of FY 1997. Remedial action completion will be followed by initiation of the completion report, long-term surveillance plan, and PLCC. The site will be licensed in FY 1998 and transferred to the LTS&M Program in FY 1998.

1. Title and location of project:	Uranium Mill Tailings Remedial Action - Surface Project 24 Designated Sites	2a. Project No. N-1.4.4 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

ALUM 1362, 1363, and 1364

In addition to the Grand Junction, CO processing site addressed previously, all remedial construction activities have been completed at the following UMTRA sites as of the end FY 1995: Ambrosia Lake, NM; Canonsburg, PA; Durango, CO; Falls City, TX; Green River, UT; Lakeview, OR; Lowman, ID; Mexican Hat, UT; Monument Valley, AZ; Ruriton, WY; Salt Lake City, UT; Shiprock, NM; Spook, WY; and Tuba City, AZ. Of these sites, the NRC has issued licenses through the end of FY 1994 for Spook, WY; Lowman, ID; and Burrell, PA, a major vicinity property associated with the Canonsburg site. These three sites have been transferred to the LTS&M Program. The NRC has also certified the Riverton, WY, site which completes all surface activities for this site. In addition, all vicinity property remedial action was completed at Edgemont and Dakota for which there are also no remaining activities.

In remediating these sites, approximately 25 million cubic yards of contaminated material were encapsulated in disposal cells on site or relocated and encapsulated in off-site disposal cells. Remaining activities for these sites for which budget is required include completion reports, pre-licensing custodial care, long-term surveillance plans, licensing activities, and transfer to the LTS&M Program.

This Project was created by UMTRCA (P.L. 95-604) which authorized the Secretary of Energy to clean up 24 designated inactive uranium mill tailings sites and approximately 5,000 associated vicinity properties. These sites and vicinity properties are to be remediated in a safe and environmentally sound manner to meet the Environmental Protection Agency (EPA) standards and to protect human health and the environment. The project coordinates with ten states and two Indian tribes to accomplish this goal. The UMTRA Amendments Act of 1988 (P.L. 100-616) extended the Department's authority to conduct remedial actions at these sites through the end of FY 1994. Additional legislation extended that date to the end of FY 1996. Due to increased scope of regulatory requirements, reduced budget levels, and the identification of additional vicinity properties associated with the Grand Junction processing site a request for extension of the authorization to the end of FY 1998 was submitted. Funding below the requested levels would delay site remedial action and cause the Project to extend past the proposed end of UMTRCA.

Detailed justification for those summary subprojects requiring funding in FY 1997 follows:

Remedial Actions:
This summary subproject is comprised of the activities to perform the cleanup of the sites as required by UMTRCA. This includes site characterization, preparation of conceptual design, preparation of the remedial action plan, processing/disposal site acquisition, and engineering and remedial action at the processing site, disposal site, and vicinity properties.

1908

1. Title and location of project:	Uranium Mill Tailings Remedial Action - Surface Project 24 Designated Sites	2a. Project No. N-1.4.4 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Program Management Support:
The activities included in this summary subproject are required to support the cleanup work being performed at the sites. This includes activities to support the NEPA process; certification of remedial action completion; licensing; technology development efforts; environmental, safety and health program; public information and participation; quality assurance audits; document control; site management; cost and schedules controls; budget development including ADS 50; performance measures; Baseline Environmental Management Report; Progress Tracking System; program management support; and management costs in support of DOE Headquarters.

Long-Term Surveillance:
This summary subproject is comprised of activities that must occur in order for the sites to be licensed, thereby satisfying the requirements of UMTRCA; and activities which result in the sites being transferred to the LTS&M Program. These include preparation and acceptance by the NRC of the long-term surveillance plan, which documents that the Federal Government has custody of the disposal site and describes in detail how the long-term care of these disposal sites will be carried out; pre-licensing custodial care of the disposal site to ensure that the integrity of the cell and surrounding area is maintained; environmental monitoring, and acceptance of the site under the general license issued by the NRC.

9. Method of Performance

The UMTRA Project Office has competitively awarded multi-year contracts for a Technical Assistance Contractor (TAC), Jacobs Engineering Group, Inc. (cost plus fixed fee contract); and a Remedial Action Contractor (RAC), MK-Ferguson Company (cost plus fixed fee contract), to support UMTRA Surface Project activities. The TAC is responsible for site characterization; NEPA documentation; conceptual design; technology development; technical and management support; and surveillance and maintenance planning following completion of remedial actions. The RAC performs engineering design; remedial action construction management; site health and safety; and quality assurance. Actual construction is performed by RAC-managed subcontractors. At the Salt Lake City, UT, site, pursuant to a mutual agreement between the Governor of Utah and the Secretary of DOE, the State of Utah was responsible for remedial action at the processing site and removal of tailings to Clive, UT. Additionally, the Department has awarded a multi-year contract to RUST-Geotech to provide RAC services for the Grand Junction, CO, and Edgemont, SD, vicinity properties. RUST-Geotech (cost plus award fee contract) performs engineering design, remedial action construction management, and quality assurance associated with the vicinity properties. In addition, it performs PLCC prior to licensing and transfer of each site to the long-term surveillance and maintenance program. Oak Ridge National Laboratory (cost reimbursable contract) is the inclusion survey/verification contractor and performs assessments of vicinity properties for inclusion, recommends remedial action if they exceed EPA standards, and verifies that remediated vicinity properties comply with the EPA standards.

1909

1. Title and location of project:	Uranium Mill Tailings Remedial Action - Surface Project 24 Designated Sites	2a. Project No. N-1.4.4 2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$1,235,769	$ 90,330	$ 72,894	$ 44,601	$ 34,854	$1,478,448
2. Decontamination & Dismantlement	0	0	0	0	0	0
3. Long-term S&M	5,740	622	1,324	1,556	951	10,193
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	0	0	0	0	0
b. Contingency	0	0	0	0	0	0
Total (TPC)	$1,241,509	$ 90,952	$ 74,218	$ 46,157	$ 35,805	$1,488,641
						0
State Portion of Funding	80,837	7,052	8,272	3,190	919	100,270
DOE Portion of Funding	1,160,672	83,900	65,946	42,967	34,886	1,388,371
Total	$1,241,509	$ 90,952	$ 74,218	$ 46,157	$ 35,805	$1,488,641

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of OSHA of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars).

1. Title and location of project: Uranium Mill Tailings Remedial Action (UMTRA)-Ground Water Project 24 Designated Sites

2a. Project No. N-1.4.5

2b. Operating Expense Funded

3a. Date assessment phase initiated: 3rd Qtr, FY 1991

3b. Duration of assessment phase: 12 Years

5. Previous cost estimate:

Total Estimated Cost (TEC):	See TPC
Total Project Cost (TPC):	DOE $533,058
	State 6,779
	$539,837

4a. Date compliance phase initiated: 3rd Qtr, FY 1994

4b. Date compliance phase ends: 4th Qtr, FY 2014

6. Current cost estimate: (through completion)

TEC:	See TPC
TPC:	DOE $494,244*
	State 2,529
	$496,773

7. Financial Schedule
Non-Defense Funded Only

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
Previous Years	$ 13,477	$ 0	$ 13,477	$ 11,822
FY 1995	7,000	0	7,000	5,786
FY 1996	7,800	0	7,800	7,671
FY 1997	7,800	0	7,800	7,395
FY 1998	11,114	0	11,114	12,416
FY 1999	21,000	0	21,000	20,543
FY 2000	28,000	0	28,000	28,314
FY 2001	28,000	0	28,000	27,842

*Current Total Project Cost Estimate reflects continuation of appropriations, obligations, and costs through project completion in FY 2014.

1. Title and location of project:	Uranium Mill Tailings Remedial Action (UMTRA)-Ground Water Project 24 Designated Sites	2a. Project No. N-1.4.5
		2b. Operating Expense Funded

8. Project Description, Justification, and Scope

Ground water contaminated by previous milling processes at the Uranium Mill Tailings Remedial Action (UMTRA) Surface Project sites does not comply with the Environmental Protection Agency (EPA) ground water standards for UMTRA sites. Data,collected at the sites under the Surface Project will be supplemented with additional characterization to determine what further action will be required. Compliance strategies will then be selected for the sites not in compliance. Some sites will not require any action because they are already in compliance or because the ambient water quality is substandard. For all other sites, an appropriate strategy will be selected and implemented to achieve compliance with the standards.

The UMTRA-Ground Water Project Programmatic Environmental Impact Statement (PEIS) will be used as a decision-making document to determine the project-wide ground water compliance strategy. The programmatic approach proposed in the PEIS is an evaluation of specific conditions at each site and the selection of a compliance strategy for each site, that will ensure compliance with the appropriate EPA standards. These proposed compliance strategies reflect the variety of ground water conditions anticipated at the UMTRA sites and range from "no further action" to engineered remediations. The compliance strategy at each site will be developed in site-specific environmental assessments (EAs) which tier off from the programmatic framework defined in the PEIS. Site-specific compliance strategies will be identified for the 24 sites following publication of the Record of Decision (ROD), negotiation of Cooperative Agreements, and acceptance of the proposed compliance strategies by the affected states and tribes.

ADS ALUM 2000 Ground Water Remedial Action:

Previous TPC of $245,659,000 reduced primarily due to: 1) reduction in number of sites likely to require an alternate approach to the targeted ground water compliance; 2) removal of costs previously identified to pay for water rights at two Indian sites for which active compliance strategy is the targeted approach; and 3) a shift in the costs for developing the PEIS and National Environmental Policy Act (NEPA) documents from this subproject to subproject ADS ALUM 2023, Program Management Support.

This subproject provides for site characterization, to include preparation of baseline risk assessments and site observational work plans (SOWPs); conceptual designs to include preparation of the remedial action plans; property acquisition to include obtaining perpetual easements, monitor well agreements, and institutional controls; construction, operation, and monitoring of ground water remediation facilities; and long-term surveillance activities to include modification to the long-term surveillance plan, preparation of certification reports and second phase licensing of the sites by the Nuclear Regulatory Commission (NRC).

1.	Title and location of project:	Uranium Mill Tailings Remedial Action (UMTRA)-Ground Water Project 24 Designated Sites	2a. Project No. N-1.4.5 2b. Operating Expense Funded

8. Project Description, Justification, and Scope (continued)

ADS ALUM 2023 Ground Water Program Management Support:

Previous TPC of $288,305,000 increased due to addition of costs for fee payments to the NRC, additional project management costs and a shift in the costs for developing the PEIS and NEPA documents from subproject ADS ALUM 2000 Remedial Actions to this subproject. This subproject provides for developing and publishing the PEIS; preparing environmental assessments; technology development and transfer; technical, administrative and overall management of the project, to include administration of the environment, health, and safety, and quality assurance programs; operation of the cost and schedule control system; project reporting; records management; and budget development. In addition, this subproject provides for costs paid to the NRC for its support to the project as well as payments to the states and tribes for DOE's share of their costs.

The Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 (P.L. 95-604) directed the Secretary of Energy to clean up 24 designated inactive uranium mill sites. Final EPA ground water standards require more strict compliance limits for ground water in plumes contaminated by milling processes at the UMTRA sites. The Uranium Mill Tailings Remedial Action Amendments Act of 1988 (P.L. 100-0616) authorized the Department to perform ground water remediation at these sites. The Department coordinates with 10 states and four Indian tribes to accomplish this remediation in order to protect public health and the environment. Although there is no time limitation, a delay in achieving compliance with the EPA standards means a continued threat to human health and the environment through consumptive use by plant and animal life. Detailed justification for those subprojects requiring funding in FY 1997 follows:

Remedial Actions: The purpose of this subproject is to comply with UMTRCA of 1978 (PL 95-604) as amended in 1988 by PL 100-616. The goal is to protect human health and the environment in a timely and cost-effective manner, using the most efficient compliance strategy for each site. This subproject supports the Remedial Actions subproject and provides for the preparation of the EAs and publication of the Findings of No Significant Impact (FONSIs), continued administrative and project management support, and NRC involvement in the project, so as to comply with EPA standards and generally satisfy the requirements stated in UMTRCA.

Type and Amount of work to be completed in the budget year (FY 1997):

- Complete EA for two sites, publish two FONSIs in the Federal Register, and complete one Remedial Action Plan (RAP).
- Initiate one EA, one SOWP, and two RAPs.
- Continue work on SOWPs at 11 sites and overall administrative and project management support.

1. Title and location of project:	Uranium Mill Tailings Remedial Action (UMTRA)-Ground Water Project 24 Designated Sites	2a. Project No. N-1.4.5
		2b. Operating Expense Funded

9. Method of Performance

The Grand Junction Project-Office, located in Grand Junction, Co. will be responsible for the acquisition of contractor services required in support of this project. A multi-year, competitively-selected contract (cost plus fixed fee) was awarded in 1991 to Jacobs Engineering Group for site characterization, feasibility studies, design, and technical and management support. A technical Assistance and Remediation Contract and Facilities operations and support contract are expected to be awarded July 1, 1996. These contractors will be responsible for construction, operations, and maintenance of required remediation facilities and program support respectively.

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-14) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 13,477	$ 7,023	$ 7,837	$ 7,862	$ 460,574	$ 496,773
2. Decontamination & Dismantlement	0	0	0	0	0	0
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	0	0	0	0	0
b. Contingency	0	0	0	0	0	0
Total (TPC)	$ 13,477	$ 7,023	$ 7,837	$ 7,862	$ 460,574	$ 496,773
Non-Federal Funding (States)	0	-23	-37	-62	-2,407	-2,529
NET Federal Total (TEC)	$ 13,477	$ 7,000	$ 7,800	$ 7,800	$ 458,167	$ 494,244

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Grand Junction Projects Office (GJPO) Grand Junction, Colorado	2a.	Project No. N-1.4.6
		2b.	Operating Expense Funded
3a.	Date assessment phase initiated: 1st Qtr FY 1980	5.	Previous cost estimate:
			Total Estimated Cost (TEC): See TPC
3b.	Duration of assessment phase: 10 Years		Total Project Cost (TPC): $382,179
4a.	Date remediation phase initiated: 1st Qtr FY 1991	6.	Current cost estimate: (through FY 2001)
			TEC: See TPC
4b.	Date remediation phase ends: 4th Qtr FY 2004		TPC: $393,494

7. Financial Schedule
Non-Defense Funded Only

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
Previous Years	$ 93,366	0	$ 93,366	$ 89,251
FY 1995	32,546	0	32,546	32,557
FY 1996	46,640	0	46,640	48,403
FY 1997	48,365	0	48,365	49,155
FY 1998	43,256	0	43,256	42,344
FY 1999	43,127	0	43,127	41,201
FY 2000	43,107	0	43,107	41,030
FY 2001	43,087	0	43,087	30,873

Project Description, Justification and Scope

Major non-defense projects at GJPO include the Monticello Remedial Action Project (MRAP), the Monticello Surface and Ground Water Remedial Action Project (MSG), the Monticello Vicinity Properties Project (MVP), the Long-Term Surveillance and Maintenance (LTSM) Program, the Grand Junction Projects Office Remedial Action Project (GJPORAP), Landlord Support, the Uranium Leasing Program, Oxnard Environmental Restoration, and several waste management projects.

1. Title and location of project:	Grand Junction Projects Office (GJPO) Grand Junction, Colorado	2a. Project No. N-1.4.6 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

MRAP includes remedial action on a 110-acre inactive Government-owned uranium/vanadium mill processing site (Operable Unit I) and the adjacent 300 acres of private and DOE-owned peripheral properties (Operable Unit II). MRAP activities include construction of a permanent, on-site repository into which approximately 2.6 million cubic yards of contaminated material will be placed. MSG (Operable Unit III) includes conducting a Remedial Investigation/ Feasibility Study (RI/FS) on the contaminated surface water and ground water system and down gradient from the MRAP millsite and contaminated sediment in Montezuma Creek Canyon. MVP includes remedial action of approximately 400 contaminated private properties.

The Oxnard Environmental Restoration Project includes site characterization and voluntary corrective actions to remediate as necessary the DOE facility in Oxnard, California.

GJPORAP includes detailed remedial action design, decontamination/removal of contaminated structures and soils, and environmental monitoring at the GJPO facility. Approximately 414,000 tons of radioactively contaminated materials have been removed from the facility.

LTSM provides program management and site custody, surveillance, environmental monitoring, and maintenance of licensed Title I and Title II disposal sites, the Section 151(c) site, and other sites (decontamination and dismantlement (D&D) and Formerly Utilized Sites Remedial Action Project (FUSRAP) sites) when transferred.

Uranium Leasing activities include mitigation of safety and environmental hazards identified on the inactive lease tracts; evaluation and approval of lessee mining plans and exploration activities; annual review and inspection of all active lease tracts restoration of withdrawn inactive lease tracts; and maintenance of four calibration facilities. GJPO landlord programs include Landlord support (facilities management and operation), Waste Management Operations, Waste Minimization, and construction of a facility to house mixed-waste treatment units and associated operations.

The scope of work to be accomplished at the budget authority level requested in FY 1997 is as follows:

MRAP: Continue remediation of millsite and peripheral properties by excavating mill tailings and contaminated soil and placing all contaminated materials into the permanent on-site repository. Provide funding for independent verification.

MSG: Continue RI/FS activities. Submit draft/final RI/FS. Draft Final Interim Proposed Plan and draft final Record of Decision (ROD) for sediments to Environmental Protection Agency (EPA) and the State of Utah.

1. Title and location of project:	Grand Junction Projects Office (GJPO) Grand Junction, Colorado	2a. Project No. N-1.4.6 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

MVP: Remediate Hall's Ditch and adjacent properties. Submit completion reports on 66 properties.

LTSM: S&M at 13 licensed Title I and 1 Title II permanent disposal sites, and the Section 151(c) site. Prepare Long-Term Surveillance Plans for 6 Title II sites.

GJPORAP: Continue D&D of contaminated buildings and perform environmental monitoring activities. Provide funding for independent verification.

Landlord: Continue basic services and provide for major maintenance. Provide for Waste Management Support Activities.

Uranium Leasing: Administer the program including the annual environmental inspections at 22 active lease tracts. Perform reclamation of eight uranium lease tracts, relinquished prior to FY 1996.

Remedial Actions: Remedial actions on MRAP, MSG, and MVP are required by a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Federal Facilities Agreement implemented between DOE, the EPA Region VIII, and the State of Utah. Other applicable or relevant and appropriate regulatory requirements are established in the RODs. After the Oxnard site is characterized, remediation will be governed by DOE environmental orders, National Environmental Policy Act (NEPA) regulations, Occupational Safety and Health Act (OSHA) and Toxic Substances Control Act (TSCA) requirements, and the State of California and county regulations, codes, and ordinances.

LTSM: The LTSM Program will be implemented for Title I and II sites in accordance with the requirements of the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, as amended, and the Nuclear Regulatory Commission (NRC) licenses for the sites. The NRC license and regulations 10-CFR-40 ensure that permanent disposal sites will be monitored and maintained to protect the future health and safety of the public. The regulations, 10CFR40.27, General License for Custody and Long-Term Care of Residual Radioactive Material Disposal Sites, took effect on November 30, 1990. The Nuclear Waste Policy Act Section 151(c) applies to the Parkersburg, West Virginia site. CERCLA and other regulations may apply to the D&D and FUSRAP sites.

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1. Title and location of project: Grand Junction Projects Office (GJPO)	2a. Project No. N-1.4.6
Grand Junction, Colorado	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

D&D: The intent of GJPORAP is to manage and dispose of on-site contaminated materials in conformance with applicable or relevant and appropriate regulatory requirements. GJPORAP is not a CERCLA site. However, CERCLA NEPA documentation was completed with the approval and issuance of the ROD on April 30, 1990. The Corps of Engineers 404 permit requires that the areas of the GJPO that were disturbed during removal of tailings be reconstructed and revegetated.

Landlord: Landlord support provides for compliance with DOE 4330.4B, Maintenance Management; DOE 4320.1B, Site Development Planning; partial compliance with DOE 4320.2, Capital Asset Management Process; Consolidated Facilities Management; 41-CFR-101, and Federal Property Management Regulations. Compliance with these orders provides for the management, planning, maintenance, and operations requirements of a Federal facility.

Waste Management operations must comply with the Federal Water Pollution Control Act, DOE Orders, OSHA requirements for hazardous waste operations and emergency response, Resource Conservation and Recovery Act requirements for hazardous and mixed waste (associated State of Colorado authorities granted by EPA), and TSCA requirements for management of regulated polychlorinated biphenyls. Waste Minimization activities are governed by DOE Orders for environmental protection and pollution prevention, Executive Orders for solid waste prevention and recycling, EPA toxic chemical release inventory requirements and other related regulatory requirements.

For Uranium Leasing annual inspections ensure compliance with environmental regulations (NEPA and the Clean Water Act) and identify safety or environmental hazards that exist on the tracts.

9. Method of Performance

Contracting arrangements are such that, to the extent possible, construction and procurement subcontracts shall be fixed price contracts awarded on the basis of competitive bidding.

1. Title and location of project: Grand Junction Projects Office (GJPO)
Grand Junction, Colorado

2a. Project No. N-1.4.6

2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 80,159	$ 22,583	$ 32,635	$ 33,740	$ 102,790	$ 271,907
2. Decontamination & Dismantlement	4,909	1,596	3,300	5,050	750	15,605
3. Long-term S&M	907	766	929	1,435	8,887	12,924
4. Landlord	7,391	7,155	9,326	7,090	57,448	88,410
6. Compliance Oversight	0	93	150	150	390	783
7. Uranium Leasing	0	353	300	900	2,312	3,865
b. Contingency	0	0	0	0	0	0
Total	$ 93,366	$ 32,546	$ 46,640	$ 48,365	$ 172,577	$ 393,494

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars).

1. Title and location of project: Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri

2a. Project No. ND-1.4.13

2b. Operating Expense Funded

3a. Date assessment phase initiated: 1st Qtr. FY 1987

3b. Duration of assessment phase: 12 years

5. Previous cost estimate: (through FY 2001)

Total Estimated Cost (TEC):	See TPC
Total Project Cost (TPC):	DOE $640,280
	DA 183,417
	$823,697

4a. Date remediation phase starts: 1st Qtr. FY 1987

4b. Date remediation phase ends: 4th Qtr. FY 2004

6. Current cost estimate: (through FY 2001)

TEC:	See TPC
TPC:	DOE $634,851
	DA 181,564
	$816,415*

7. Financial Schedule
Non-Defense Funded Only

Fiscal Year		Appropriations	Adjustments	Obligations	Costs
Previous Years	DOE	$ 233,641	$ 0	$ 233,641	$ 218,227
	DA	96,412	0	96,412	70,147
	Total	330,053	0	330,053	288,374
FY 1995	DOE	41,403	0	41,403	48,050
	DA	15,711	0	15,711	24,177
	Total	57,114	0	57,114	72,227
FY 1996	DOE	58,500	0	58,500	62,886
	DA	13,368	0	13,368	17,516
	Total	71,868	0	71,868	80,402

*Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13 2b. Operating Expense Funded

7. Financial Schedule

Fiscal Year		Appropriations	Adjustments	Obligations	Costs
FY 1997	DOE	67,500	0	67,500	53,648
	DA	19,173	0	19,173	16,328
	Total	86,673	0	86,673	69,976
FY 1998	DOE	58,604	0	58,604	48,826
	DA	9,200	0	9,200	9,534
	Total	67,804	0	67,804	58,360
FY 1999	DOE	58,428	0	58,428	47,241
	DA	9,200	0	9,200	9,753
	Total	67,628	0	67,628	56,994
FY 2000	DOE	58,401	0	58,401	52,908
	DA	9,200	0	9,200	13,806
	Total	67,601	0	67,601	66,714
FY 2001	DOE	58,374	0	58,374	59,520
	DA	9,300	0	9,300	11,666
	Total	67,674	0	67,674	71,186
	DOE	$ 634,851	$ 0	$ 634,851	$ 591,306
	DA	181,564	0	181,564	172,927
	Total	$ 816,415	$ 0	$ 816,415	$ 764,233

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13
		2b. Operating Expense Funded

8. Project Description, Justification and Scope

The Weldon Spring Site is a surplus facility on the Environmental Protection Agency's (EPA) National Priorities List to be remediated per National Environmental Policy Act (NEPA)/Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requirements. The Weldon Spring Site is located in St. Charles County, Missouri, about 30 miles west of St. Louis, on land formerly used by the Department of the Army as a trinitrotoluene (TNT) and dinitrotoluene (DNT) ordnance works. The site consists of a 3.4 ha (9-acre) abandoned limestone quarry; a 21 ha (51-acre) raffinate disposal area; and a 69.6 ha (169-acre) uranium feed materials plant. This is a jointly funded project with the Department of Army. Work performed during the project will include environmental monitoring, environmental documentation, remedial design and remedial action. Training costs for DOE personnel, stakeholders, and other direct support contractors are paid from project funds. Training includes only that necessary to conform to regulatory requirements for access to and operation of this remedial action project. The Project Management Contractor schedules and coordinates all site specific training. In addition, various support facilities will be constructed utilizing operating funds. These facilities include:

Subproject 7301 - Project Integration:
Project integration provides project management, administration, environmental safety and health sampling/ monitoring, and implementation for WSSRAP in order to place the site in a radiologically/chemically safe condition in accordance with DOE guidelines. Specific tasks include:

- Conduct environmental safety/health programs as required to protect human health and the environment.
- Ensure remedial actions are conducted in accordance with applicable DOE guidelines; Federal, State, and local regulations; and consistent with any agreements reached between DOE, EPA Region VII, and the State of Missouri.
- Determine/implement the long-term disposition decision for radioactive/chemical waste and the site consistent with NEPA, CERCLA, Resource Conservation and Recovery Act (RCRA) and the Atomic Energy Act.
- Ensure all work is performed at minimum cost consistent with public health, safety, security, and environmental protection requirements.
- Provide maintenance/surveillance to protect the public and on-site workers.
- Record plans, procedures, costs, and other data to readily transfer knowledge/experience gained to other remedial action and future decommissioning projects.
- Perform planning/remedial activities in coordination with other DOE environmental restoration programs and in compliance with applicable quality/reliability objectives established by DOE.

1922

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Subproject 7302 -Technical Support Facilities:
Technical support Facilities provides all technical support associated with the Weldon Spring Site Remedial Action Project. These tasks include:

- Analytical laboratory/Environment, Safety and Health services
- Site surveys/maps
- Specialty labor such as drilling services
- Design, construction, and operation of buildings and facilities such as administration building, annex, laboratory, and composite building
- Design, construct, and maintain decontamination station
- Equipment/supplies for safe field operations including radiation/environmental/waste management/safety

Subproject 7303 - Quarry:
The Quarry is a nine acre site containing 126,630 cubic yards of radiologically contaminated soil/rubble and three million gallons of radiologically or chemically contaminated water.

A Record of Decision (ROD) for Quarry bulk waste removal was signed in March 1991 and the plan for remediation includes:
- Interim response action to treat Quarry contaminated water and discharge to the Missouri River
- Excavate Quarry bulk waste from the Quarry
- Transport Quarry bulk waste on a dedicated haul road to a Temporary Storage Area (TSA) at the site
- Treat Quarry TSA runoff at the Site Water Treatment Plant and discharge to the Missouri River.
- Restoration of the Quarry after remediation is complete.

Remedial action alternatives for Quarry residuals and ground water will be addressed during separate Remedial Investigation/Feasibility Study (RI/FS) processes.

1923

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Subproject 7304 - Raffinate Pits:
The Raffinate Pits consist of four waste lagoons, located within the Chemical Plant site. The contents of the lagoons consist of 407,930 cubic yards of Raffinate Sludges/Soil and 57 million gallons of radioactively- or chemically- contaminated water.

The Raffinate Pit tasks includes the remedial action and restoration of the four raffinate pits situated within the DOE property fence and the installation and operation of a sludge processing facility to prepare the raffinate wastes for permanent disposal. Specific activities include:

- Design, construction, and testing of a sludge processing facility pilot plant
- Title I/II design for raffinate pit waste removal and a sludge processing facility
- Installation/operation of sludge processing facility
- Excavation/removal of pond sludges/contaminated soil
- Transport of waste to sludge processing facility
- Decommissioning of sludge processing facility
- Restoration of raffinate pit site

Subproject 7305 - Chemical Plant:
The Chemical Plant site consists of 44 buildings and other structures along with 347,996 cubic yards of radiologically/chemically contaminated soil and building material. Within the site are the raffinate pits, the temporary storage area for Quarry bulk waste, and potentially a disposal facility after the buildings and foundations are removed.

The Chemical Plant tasks consists of all activities associated with remediation of Chemical Plant process buildings, support buildings, foundations, tanks, soils and utilities within the DOE property fence. Specific tasks include:

- Title I/II Design engineering
- Asbestos removal/decontamination of buildings, tanks, pressurized cylinders, containerized chemicals, foundations, equipment and soils
- Disposal of containerized chemicals
- Dismantling/demolition of buildings, equipment, foundations, underground pipes, and miscellaneous utilities
- Construct/operate Material Staging Area (MSA)
- Transport asbestos to Asbestos Containing MSA

1924

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

- Sort/transport wastes to MSA
- Construct surface water drainage control system
- Remove contaminated soils
- Restore Chemical Plant Site grounds
- Renovate/operate RCRA waste storage facility in compliance with RCRA/Toxic Substances Control Act

Subproject 7306 - Vicinity Properties:
The Vicinity Properties consist of several areas adjacent to DOE property and contain approximately 25,400 cubic yards of radiologically or chemically contaminated soil. The Vicinity Properties tasks consist of all activities associated with remediation and restoration of properties known as Femme Osage Slough, Southeast Drainage, Army properties, and Busch Wildlife properties located outside the DOE property fence. The properties are contaminated as a result of previous activities conducted at the Weldon Spring Site. Specific tasks include:

- Performing Title I/II Design engineering
- Removal of contaminated soils and transportation to appropriate disposal area
- Restoration of designated vicinity property

Subproject 7307 - Disposal Facility:
The ROD for the final disposition of the WSSRAP wastes was signed in September 1993. The final disposal alternative for the remediated wastes of the WSSRAP is outlined in the Disposal Facility tasks. The Disposal Facility tasks consists of the development, construction, and operation of a disposal cell facility located at the Chemical Plant site, site water treatment plant, and waste processing facility for permanent, on-site disposal for Quarry (ADS 7303), Raffinate Pit (ADS 7304), Chemical Plant (ADS 7305) and Vicinity Property (ADS 7306) site wastes. In addition, approximately 50,000 cubic yards of contaminated soil from an adjacent Department of the Army cleanup site will be placed in the disposal facility. Specific tasks include:

- Title I/II Design engineering
- Construction/operation of disposal facility
- Construction/operation of soil borrow area
- Construction/operation of water treatment plant facilities
- Construction/operation of waste processing facility
- Construction/operation of construction MSA
- Decommissioning facilities and restoration

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Subproject 7308 - Studies:

Before any remedial action may be started, the WSSRAP must complete the appropriate environmental compliance process. The studies tasks include radiological, chemical, and geotechnical investigations; characterization analyses; assessments and associated documentation to support the remedial action/restoration of WSSRAP. These remedial action/restoration activities will be performed in compliance with NEPA and CERCLA and other regulations as required. Specific tasks include:

- Generation/revision of RI/FS work plans
- Prepare RI/FS-Environmental Impact Statement (EIS) and supporting documentation for Quarry Bulk Waste removal
- Prepare RI/FS-EIS and supporting documentation for remedial action/disposal/restoration activities of Chemical Plant site
- Prepare integrated RI/FS-EIS and supporting documentation for the quarry residual/ground water operable unit (OU)
- Prepare RI/FS-EIS and supporting documentation for the site ground water OU
- Conduct RI and characterization activities
- Prepare RI reports
- Prepare risk assessments
- Support resolution of all public and government agency questions/comments
- Prepare special studies/reports to support remedial action/restoration of WSSRAP
- Prepare Conceptual Design Report
- Prepare/review all Engineering Evaluation/Cost Analyses
- Prepare/review all RODs

Subproject 7312 - Independent Validation/Verification:

DOE/EM directs a program under the Office of Environmental Restoration to evaluate hazardous material contamination at sites previously used by contractors of DOE or its predecessors (Manhattan Engineering District, Atomic Energy Commission (AEC), and Energy Research and Development Administration), and to implement remedial actions, where appropriate. It is the DOE practice to require independent verification of the adequacy of such remedial actions at Weldon Spring site and reports findings to DOE. In addition, Oak Ridge Institute for Science and Education (ORISE) serves as the archival site for environmental samples and the supporting records. ORISE also provides technical assistance to DOE/EM on topics related to radiological and hazardous material contamination control, monitoring, and guidelines. This includes the review of documents related to specific sites and DOE guidance reports.

1926

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Verification of ongoing remedial action activities will continue as assigned. The need for verification activities is expected to increase during the FY 1995-FY 1998 timeframe, as the planning process is concluded and remedial action increases.

WSSRAP is listed on the NPL and the purpose of the project is to remediate the Weldon Spring Quarry, Raffinate Pits, Chemical Plant, and Vicinity Properties, and provide for long-term management of the wastes in a safe and environmentally sound manner.

Justification:
The feed materials plant was built during 1955-1957 by the AEC, predecessor agency to DOE, and operated by Mallinckrodt Inc. for the AEC from 1957 to 1966. During operations of the plant, the buildings, equipment, immediate terrain, process sewer system, vicinity properties, and drainage easement to the Missouri River became contaminated with uranium, thorium, and their decay products.

During the period 1943-1957, DA utilized the Weldon Spring Quarry for disposal of rubble and soils contaminated with TNT and DNT, and AEC disposed of building rubble and soils contaminated with thorium, uranium, and decay products during its operations at the site. The Weldon Spring Quarry contains a total of 126,630 cubic yards (225,770 tons) of wastes, including materials contaminated by the radioactive wastes.

In 1967, the feed materials plant site was selected for a herbicide production facility and, except for the materials stored in the Weldon Spring Raffinate Pits (WSRP), the site was transferred back to the DA and renamed the Weldon Spring Chemical Plant (WSCP). The DA began a major effort to decontaminate three process buildings for herbicide production. The cleanup was not totally successful, and subsequently, reduced requirements for the herbicide and increased cleanup costs resulted in project cancellation in 1969. Approximately 347,996 cubic yards (448,804 tons) of contaminated soil, equipment, and building rubble remaining on the WSCP site requires cleanup to meet current guidelines for unrestricted use.

The 51 acres encompassing the WSRP site were transferred back to the AEC (now DOE) in 1971. The WSRP contain approximately 254,430 cubic yards (268,630 tons) of residues. In addition, it is estimated that 153,500 cubic yards (233,320 tons) of soils/sediments beneath the pits was contaminated by these radioactive wastes.

The sites have been in care and custody status since activities ceased in 1969. In June 1975, environmental and radiological surveys were initiated. Preliminary analyses showed that the site cannot be released for unrestricted use without radiological decontamination. Trace levels of TNT and DNT residues are present throughout the area; however, no explosive hazard exists. Also, a preliminary estimate indicates approximately 25,400 cubic yards of contaminated materials on nearby associated vicinity properties may require removal and disposal. Current monitoring shows continuing off-site migration of radionuclides, and other hazardous substances. Remedial actions are necessary to stabilize the wastes.

1997

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

In February 1987, DOE issued a draft EIS for remedial action at the Weldon Spring Site. This draft EIS and supporting documents was also intended to meet the CERCLA document requirements for an RI/FS. In June 1987, DOE determined that a revised draft EIS was needed based on significant new information on ground water contamination that became available after the draft EIS was issued. In December 1987, EPA requested that DOE prepare an RI/FS. DOE agreed to prepare an RI/FS and supplement it with any additional information needed for an EIS.

DOE and EPA have entered into a Federal Facility Agreement which establishes responsibilities, remedial action objectives and a schedule of milestones for completion of WSSRAP. This agreement was signed in January 1992. A ROD was signed by EPA and DOE in 1991 regarding the removal of bulk waste at the Quarry. A ROD was signed by EPA and DOE in 1993 regarding the final disposal of all waste at the WSSRAP.

Scope:
The WSSRAP has been designated as a DOE Major Systems Acquisition with the objective of remediating hazardous conditions at the Site.

The Scope of the WSSRAP includes:

(1) Maintenance and surveillance of the site as necessary to maintain public safety and reduce radiological impact to as low as reasonably achievable, in preparation for site disposition.
(2) Assumption of custody and accountability for the WSCP at the beginning of FY 1986 and integration of remedial actions at the WSCP with the WSRP, the WSQ, and the WSVP.
(3) Integrated planning, engineering, and technology development as necessary to support evaluation of long-range disposition alternatives.
(4) Completion of environmental documentation process as required under CERCLA/NEPA.
(5) Planning and implementing the remedial action program required to adequately clean up the site, including construction of a disposal cell for final waste disposal.
(6) Decontaminating the Weldon Spring Quarry to mitigate migration of radiological/chemical contaminants toward the well field which provides drinking water to more than 60,000 residents of St. Charles County.

9. Method of Performance

The Office of Environmental Management has been assigned programmatic responsibility for the project. The Oak Ridge Operations Office has been delegated day-to-day project management responsibility and has established a dedicated Project Office at the site.

1928

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13
		2b. Operating Expense Funded

9. Method of Performance (continued)

The Project Office will provide technical, administrative, and financial management of the project. MK-Ferguson is the Project Management Contractor and is responsible for the final design and construction, surveillance and maintenance, and insuring completion of the project in accordance with DOE guidance. In implementing approved remedial actions, the Project Management Contractor (PMC) will utilize subcontractors from the Weldon Spring vicinity to the extent that it is cost-effective and programmatically expedient.

Argonne National Laboratory is the RI/FS-EIS preparation contractor. PAI Corporation is the support services contractor selected to assist DOE in the review of work performed by the PMC. The United Nuclear Corporation conducted the radiological characterization for the WSCP. Process technology studies in support of the RI are being performed by Oak Ridge National Laboratory and Pacific Northwest Laboratory. United States Geological Survey/Missouri Department of Natural Resource are assisting in the conduct of geohydrological investigation to support site characterizations.

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 330,053	$ 57,114	$ 71,868	$ 71,460	$ 233,807	$ 764,302
2. Decontamination & Dismantlement	0	0	0	0	0	0
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	0	0	0	0	0
b. Contingency	0	0	0	15,213	36,900	52,113
Total Project Costs	330,053	57,114	71,868	86,673	270,707	816,415
DOE Portion of Costs	233,641	41,403	58,500	67,500	233,807	634,851
DA Portion of Costs	96,412	15,711	13,368	19,173	36,900	181,564
Total Project Funding	$ 330,053	$ 57,114	$ 71,868	$ 86,673	$ 270,707	$ 816,415

1929

1. Title and location of project:	Weldon Spring Site Remedial Action Project (WSSRAP) St. Charles, Missouri	2a. Project No. ND-1.4.13
		2b. Operating Expense Funded

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

1990

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Formerly Utilized Sites Remedial Action Project (FUSRAP) 46 Sites in 14 States	2a.	Project No. N-1.4.11
		2b.	Operating Expense Funded
3a.	Date assessment phase initiated: 2nd Qtr, FY 1974	5.	Previous cost estimate:
3b.	Duration of assessment phase: 39 Years		Total Estimated Cost (TEC): See TPC
			Total Project Cost (TPC): $867,922
4a.	Date remediation phase starts: 4th Qtr, FY 1979	6.	Current cost estimate: (through FY 2001)
4b.	Date remediation phase ends: 4th Qtr, FY 2016		TEC: See TPC
			TPC: $1,006,512*

7. Financial Schedule
Non-Defense Funded Only

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
Previous Years	$ 345,779	$ 0	$ 345,779	$ 345,779
FY 1995	74,100	0	74,100	70,674
FY 1996	73,982	0	73,982	85,200
FY 1997	83,079	0	83,079	87,588
FY 1998	92,203	0	92,203	88,000
FY 1999	119,208	0	119,208	110,792
FY 2000	110,137	0	110,137	103,731
FY 2001	108,024	0	108,024	103,671

*Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

1931

1. Title and location of project:	Formerly Utilized Sites Remedial Action Project (FUSRAP) 46 Sites in 14 States	2a. Project No. N-1.4.11 2b. Operating Expense Funded

8. Project Description, Justification and Scope

Site Identification and Assessment: The site identification and assessment program initiated by the Atomic Energy Commission (AEC) in 1974, a predecessor of FUSRAP, is being continued under FUSRAP to identify sites where radioactive contamination remains from the early years of the nation's atomic energy program. Following a determination that there is authority to conduct remedial action under the Atomic Energy Act of 1954, as amended, sites so identified are formally included for remedial action under FUSRAP.

Remedial Action: FUSRAP currently includes 46 sites in 14 states. FUSRAP objectives are to identify, clean up, or otherwise control sites where radioactive contamination remains from the early years of the nation's atomic energy program or from commercial operations that Congress authorized DOE to remedy. Of the 46 FUSRAP sites, 40 are Manhattan Engineer District (MED) or AEC sites that are included in FUSRAP under authority of the Atomic Energy Act of 1954, as amended. The other six sites were added by Congressional action in 1984 and 1985. Six of the FUSRAP sites are listed on the Environmental Protection Agency's (EPA) National Priorities List (NPL).

Characteristic of Contamination: MED and AEC conducted several programs during the 1940s and 1950s involving research, processing, and production of uranium and thorium, and storage of residues that resulted from uranium and thorium processing. In the early years of the nation's nuclear energy development program, most uranium was extracted from foreign ores. Pitchblende was imported, stored for short periods, transported to sampling plants in the eastern United States, and finally transferred to mills and refineries for uranium extraction.

Some ores were processed for thorium content. Much of the Government-sponsored research and development was conducted at national laboratories and at colleges and universities. Commercial firms produced the needed raw concentrate that was then refined and converted into other uranium and thorium compounds or transformed into metal. Most of the metals were ultimately transported to MED and AEC sites in the vicinity of Richland, Washington; Oak Ridge, Tennessee; and Aiken, South Carolina, for further processing. Commercial firms also conducted operations to recover uranium from scrap and to salvage ferrous and nonferrous metals from radioactively contaminated scrap. Therefore, the contaminants of concern are:

- Uranium-238 and daughter isotopes (thorium-234, uranium-234, thorium-230, and radium-226)
- Thorium-232 and daughter isotopes (radium-228, thorium-228, and radium-224)

As a result of these activities, materials, equipment, buildings, and land became contaminated, primarily with naturally occurring radionuclides. As operations were completed or phased out and facilities closed or returned to non-nuclear uses, privately and institutionally owned sites were decontaminated or stabilized in accordance with survey methods and guidelines existing at the time; the sites were subsequently released for other uses.

1932

1. Title and location of project:	Formerly Utilized Sites Remedial Action Project (FUSRAP) 46 Sites in 14 States	2a. Project No. N-1.4.11 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

However, radiological guidelines have since become more stringent. FUSRAP objectives are to continue efforts to identify these formerly used MED and AEC sites, re-evaluate their radiological condition, take appropriate response action, establish controls consistent with existing legislative authority, and certify the sites for appropriate future use. Other sites used primarily for commercial ventures were added to FUSRAP by the Atomic Energy Act of 1954, and the 1984 and 1985 Energy and Water Development Appropriations Acts and subsequent reauthorizations.

Waste Strategy: Within the 30-year planning window, the remedial investigation/feasibility study (RI/FS) process will identify options, and permanent disposal actions will be taken on approximately 2.3 million cubic yards of material from FUSRAP sites. Permanent disposal options must be identified or developed for this low-level radioactive and mixed waste to support cleanup plans. While feasibility studies will evaluate many cleanup options, for planning purposes the cleanup strategy utilized known effective remedial actions methods; i.e., contaminated soil will be excavated and disposed of or stored in an appropriate facility.

Facility Construction Activities: FUSRAP has no activities that involve the construction of facilities such as office buildings, analytical laboratories, or other structures. While FUSRAP scope does include the construction of waste containment cells, there are no construction activities that result in facilities that would have utility after the completion of cleanup efforts.

Scope: FUSRAP Scope includes:

- Records searches and radiological assessments to identify sites formerly used to support the MED/AEC work and to determine if there is authority to conduct remedial action under FUSRAP.
- Surveillance and maintenance of DOE-owned or DOE-operated sites (including interim storage facilities) as necessary to maintain public safety and reduce radiological impact to as low as reasonably achievable, in preparation for remedial action.
- Integrated planning, engineering, and technology development as necessary to support evaluation of long-range disposition alternatives.
- Completion of environmental documentation process as required under Comprehensive Environmental Response, Compensation and Liability Act/National Environmental Policy Act (CERCLA/NEPA).
- Planning and implementation of the remedial action program required to adequately clean up the sites including final waste disposal.
- Verification and certification activities at each site necessary to ensure that the response action is complete and that the site is available for appropriate use.

1. Title and location of project:	Formerly Utilized Sites Remedial Action Project (FUSRAP) 46 Sites in 14 States	2a. Project No. N-1.4.11 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The current listing of FUSRAP sites follows:

Missouri:
Latty Avenue Properties (Hazelwood)
St. Louis Airport Site (St. Louis)
St. Louis Airport Site Vicinity Properties (St. Louis)
St. Louis Downtown Site (St. Louis)

New York Sites:
Niagara Falls Storage Site (Lewiston)
Colonie (Colonie)
Ashland 1 (Tonawanda)
Ashland 2 (Tonawanda)
Linde Air Products (Tonawanda)
Seaway Industrial Park (Tonawanda)
Bliss & Laughlin Steel (Buffalo)

New Jersey Sites:
Maywood (Maywood/Rochelle Park)
Wayne (Wayne)
Middlesex Sampling Plant (Middlesex)
New Brunswick Site (New Brunswick)
DuPont & Company (Deepwater)

Other Sites:
Shpack Landfill (Norton, MA)
Ventron (Beverly, MA)
W. R. Grace & Company (Curtis Bay, MD)
Madison (Madison, IL)
Luckey (Luckey, OH)
Painesville (Painesville, OH)
B&T Metals (Columbus, OH)
Baker Brothers (Toledo, OH)
CE (Windsor, CT)

Completed Sites:
Acid/Pueblo Canyons (Los Alamos, NM)
Albany Research Center (Albany, OR)
Bayo Canyon (Los Alamos, NM)
Chupadera Mesa (White Sands Missile Range, NM)
Kellex/Pierpont (Jersey City, NJ)
Middlesex Municipal Landfill (Middlesex, NJ)
National Guard Armory (Chicago, IL)
Niagara Falls Storage Site Vicinity Properties (Lewiston, NY)
University of California (Berkeley, CA)
University of Chicago (Chicago, IL)
Elza Gate (Oak Ridge, TN)
Seymour Specialty Wire (Seymour, CT)
Granite City Steel (Granite City, IL)

Baker & Williams Warehouses (New York City, NY)
Aliquippa Forge (Aliquippa, PA)
C. H. Schnoor (Springdale, PA)
Alba Craft (Oxford, OH)
HHM Safe Co. (Hamilton, OH)
General Motors (Adrian, MI)
Chapman Valve (Indian Orchard, MA)
Associate Aircraft (Fairfield, OH)

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1. Title and location of project:	Formerly Utilized Sites Remedial Action Project (FUSRAP) 46 Sites in 14 States	2a. Project No. N-1.4.11 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

New York Sites: OR-1301-AA
This activity covers all environmental assessment and remediation work at the seven radioactively contaminated sites in New York. These sites are under the DOE FUSRAP, and include the Tonawanda sites (Ashland 1, Ashland 2, Linde, Seaway) Colonie, Bliss & Laughlin Steel, and Niagara Falls Storage Site. Six of the seven contaminated sites contain radioactive residues from uranium processing activities conducted by the U.S. Government during and after World War II. The Colonie site milled uranium metals under contract to the Department of Defense. FUSRAP sites are also being assessed for chemical contamination.

FY 1997 - FY 2001 Activities:
Seaway and Linde remedial actions will start and be completed. Restoration of the Wetlands at Ashland 2 will be completed. Removal of decontaminated soil at Colonie will start. Post-remedial action reports (PRARs) for Ashland 2, Seaway, and Linde will be prepared and the certification dockets completed, including Ashland 1 remedial action will start and be completed and the certification docket for Bliss and Laughlin will also be completed.

New Jersey Sites: OR-1302-AA
This activity covers all environmental assessment and remediation work at the five radioactively-contaminated sites in New Jersey. These sites are under the DOE FUSRAP and include the Middlesex Sampling Plant, Wayne, Maywood, New Brunswick Site, and DuPont and Company. The five contaminated sites contain radioactive residues from uranium processing activities conducted by the U.S. Government during and after World War II, or thorium waste from commercial operations that Congress authorized DOE to address. FUSRAP sites are also being assessed for chemical contamination resulting from these activities.

FY 1997 - FY 2001 Activities:
Continue pile removal activities for Wayne and Maywood. Remedial action will start and be completed for New Brunswick and the PRAR and certification docket will also be completed. At Middlesex, remedial action and the PRAR will be completed.

Missouri: OR-1303-AA
This activity covers all work at the four radioactively contaminated sites in Missouri. The sites are under the DOE FUSRAP. The Missouri sites are located in the St. Louis area and include the St. Louis Airport Site, the St. Louis Downtown Site, the Latty Avenue Properties, and SLAPS vicinity properties. The sites contain radioactive residues from uranium processing activities conducted by the U.S. Government during and after World War II. Congress authorized DOE to address three of the sites which are on the EPA's NPL. FUSRAP sites are also being assessed for chemical contamination resulting from these activities.

1. Title and location of project:	Formerly Utilized Sites Remedial Action Project (FUSRAP) 46 Sites in 14 States	2a. Project No. N-1.4.11 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

FY 1997 - FY 2001 Activities:
Remedial action at SLAPS vicinity properties will continue. Remedial action at SLAPS, Latty Avenue Properties, and St. Louis Downtown Site will continue.

Other Sites: OR-1304-AA
This activity covers all environmental assessment and remediation work at radioactively contaminated sites in Maryland (W. R. Grace); Massachusetts (Ventron, Shpack Landfill, Illinois (Madison); and Ohio Baker Brothers, B&T Metals, Luckey, and Painesville). These sites are under the DOE FUSRAP. These sites are privately-owned and operated industrial facilities that represent a potential source of contamination for vicinity properties. The sites contain radioactive residues from uranium processing activities by the U.S. Government during and after World War II. FUSRAP sites are also being assessed for chemical contamination resulting from these activities.

FY 1997 - FY 2001 Activities:
At Shpack, MA remedial action will be performed by the Principle Responsible Party (PRP), and the PRAR and certification docket will be completed. Remedial action will be completed at Ventron, MA as will the PRAR and certification docket. Remedial action at B&T Metals, OH will be completed as will the PRAR and certification docket. Remedial action at Luckey, OH will start. Characterization of Madison, IL will start. Remedial action at W.R. Grace, MD will be completed and the PRAR will be started. The certification docket will be completed at Baker Brothers, OH.

Purpose:
The objectives of FUSRAP are to:

- Identify and assess all sites formerly used to support early MED/AEC nuclear work to determine whether further decontamination and/or control is needed.
- Decontaminate and/or apply controls to these and other FUSRAP sites to permit conformance with current applicable guidelines.
- Dispose of and/or stabilize all generated residues in a radiologically and environmentally acceptable manner.
- Certify that response action is complete and site is available for appropriate use.

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1. Title and location of project:	Formerly Utilized Sites Remedial Action Project (FUSRAP) 46 Sites in 14 States	2a. Project No. N-1.4.11 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Justification:
The Atomic Energy Act of 1954, as amended, authorized DOE to perform radiological surveys and other research. This work includes radiological monitoring at sites used to support the nuclear activities of DOE's predecessor agencies.

The 1984 Energy and Water Development Appropriation Act authorized DOE to conduct a decontamination research and development project at four sites (Colonie, Wayne, Maywood, and Latty Avenue properties). The 1985 Energy and Water Development Appropriation Act authorized DOE to acquire title to the St. Louis Airport Site, perform necessary response action, and develop the property as a disposal site for the waste currently on-site and for waste from response actions conducted on vicinity properties and the Latty Avenue properties. Continued authorization has been provided each year in the passage of subsequent Energy and Water Development Appropriations Acts. DOE has authority to conduct response actions at 46 FUSRAP sites.

CERCLA authorizes DOE to conduct response actions on FUSRAP sites. DOE has entered into Federal Facility Agreements with EPA to conduct response actions at sites on the NPL, with the exception of Shpack (where DOE is not a PRP).

CERCLA and NEPA Compliance:
FUSRAP follows a process for integrating the requirements of both CERCLA and NEPA in a manner consistent with DOE Orders, CERCLA, NEPA, and Federal and State applicable or relevant and appropriate regulations (ARARs).

CERCLA mandates completion of remedial investigation/feasibility studies, selection of response action alternatives, and documentation in a Record of Decision (ROD), as well as implementation of the ROD through remedial design and remedial action.

Radiological and Chemical Remediation and Waste Control Guidelines:
Radiological remediation and waste control guidelines for storage and disposal of FUSRAP wastes are provided in DOE Order 5400.5. For radionuclides not covered by DOE Order 5400.5, site-specific guidelines are developed and approved by DOE. Chemical remediation and control guidelines are developed from Federal and State ARARs on a site-specific basis.

Facility Design Criteria:
DOE Order 6430.1A, "General Design Criteria", is being used in the planning and design of waste storage facilities.

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1. Title and location of project:	Formerly Utilized Sites Remedial Action Project (FUSRAP) 46 Sites in 14 States	2a. Project No. N-1.4.11 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Site Operations:
All work will be accomplished in accordance with (1) appropriate landowner agreements; (2) local and State environmental and land-use requirements, to the extent permitted by Federal law; and (3) applicable Federal regulations, standards, policies, and procedures, including DOE Orders.

If assessment/cleanup work were halted or delayed, DOE could be perceived as not taking timely action to reduce or eliminate environmental, health, and safety problems at the privately owned residential and commercial sites. The ability of property owners to modify or sell their properties could be inhibited as long as the contamination remains in place. Delays could lead to intense public and political concern and demands for timely action. Reactions could be particularly intense because private citizens and companies are involved. Halting or delaying the timely completion of assessment and subsequent cleanup actions could result in leaving uncontrolled radioactive contamination on privately owned residential and commercial properties. The possibility for uncontrolled spread of this contamination is high, especially for those sites that DOE does not own, because DOE has no effective control of these sites. The spread of contamination, with the attendant risk of exposure to greater numbers of the general public and increased cleanup costs has already occurred at several locations.

9. Method of Performance

The environmental studies contractor for FUSRAP, Science Applications International Corporation (SAIC), is responsible, under direction from DOE, for the planning, management, and execution of the CERCLA RI/FS process and for meeting NEPA and Resource Conservation and Recovery Act requirements. SAIC interfaces closely with the project management contractor (PMC). SAIC's contract was awarded on the basis of competitive bidding and is accomplished by Cost Plus Fixed Fee.

The PMC for FUSRAP, Bechtel National, Inc. (BNI), is responsible for project integration and the planning, management, and execution of response action activities. BNI administers subcontracts, coordinates the sequence of operations and the relationships among subcontractors, and ensures completion of the program in accordance with DOE objectives. On approval from Oak Ridge, BNI executes response actions as required. BNI subcontracts response action work at FUSRAP sites to the extent that is cost-effective and programmatically expedient. BNI is responsible for monitoring and controlling all day-to-day activities at remedial action sites. In addition, BNI is responsible for defining and implementing quality assurance procedures, environmental compliance activities, and safety programs to meet DOE requirements for all sites. BNI's contract was awarded on the basis of competitive bidding and is accomplished by Cost Plus Fixed Fee. To the extent feasible, construction and other contracts issued by the PMC shall be accomplished by Fixed Price contracts awarded on the basis of competitive bidding.

1. Title and location of project:	Formerly Utilized Sites Remedial Action Project (FUSRAP) 46 Sites in 14 States	2a. Project No. N-1.4.11 2b. Operating Expense Funded

9. Method of Performance (continued)

Argonne National Laboratory (ANL) provides technical support to Former Site Restoration Division (FSRD) through technical review of analyses and documents and through assistance to the FUSRAP self-assessment program. The Oak Ridge National Laboratory (ORNL) also provides technical support to FSRD by conducting environmental audits of activities at FUSRAP sites. Oak Ridge Institute for Science and Education (ORISE) and ORNL conduct radiological surveys in support of DOE Headquarters functions associated with site identification and assessment and with remedial action verification and certification activities. These activities are performed under the direction of the FUSRAP Program Manager. The ANL, ORNL, and ORISE contracts were awarded on the basis of competitive bidding. They are management and operating type contracts and are accomplished by Cost Plus Award Fee.

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 345,779	$ 74,100	$ 73,982	$ 83,079	$ 429,572	$ 1,006,512
2. Decontamination & Dismantlement	0	0	0	0	0	0
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	0	0	0	0	0
b. Contingency	0	0	0	0	0	0
Total	$ 345,779	$ 74,100	$ 73,982	83,079	429,572	$ 1,006,512

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

WASTE MANAGEMENT - NON-DEFENSE

PROGRAM MISSION

For nearly five decades the Department of Energy (DOE) and its predecessors, the Energy Research and Development Administration and the Atomic Energy Commission, have been generating radioactive waste from research and development activities. Those activities produced large quantities of waste, which was stored or disposed of in a manner that does not meet today's more stringent environmental, safety and health requirements. Much of the stored waste contains radioactive materials, hazardous chemicals, or both.

The mission of the Waste Management Program is to protect people and the environment from the hazards of DOE waste by providing an effective and efficient system to treat, store, and dispose of the waste as soon as possible. The Department has developed integrated planning strategies for each type of waste managed across the DOE complex, including: high-level waste (HLW), transuranic waste (TRU), low-level waste (LLW), mixed low-level waste (MLLW), hazardous waste (HAZ), and sanitary waste (SAN). These strategies support the waste management mission by focusing on a 10-year horizon, when much progress will be made. The strategies incorporate performance measures to evaluate progress on reducing current backlog of waste through treatment and disposal and the ability to routinely manage new waste as generated. By 2005, each waste-type program will achieve at least half of its overall mission, with the exception of HLW. The budget supports maintaining an acceptable level of risk, while making significant progress toward mission completion in FY 1997.

In response to direction from Congress, the Corrective Activities budget was combined with the Waste Management Budget starting in FY 1996. There are only two projects requiring funding in FY 1997, all other projects being completely funded. There will be no future requests for new Corrective Activities. Other Budgets combined with the Waste Management Budget by the FY 1996 Appropriation include the West Valley Demonstration Project and the National Low-Level Waste Program. Further adjustments, which provide greater management flexibility are the inclusion of capital equipment and general plant project funding with operating expenses in a category known as Operations and Maintenance.

WASTE TYPE STRATEGY

High-Level Waste

High-level waste is the highly radioactive material resulting from the reprocessing of spent nuclear fuel. It includes mainly liquid waste remaining from the recovery of uranium and plutonium from spent fuel. The long-term objective in the management of high-level waste (HLW) is to dispose of the radioactive portion of the waste in a geologic repository. The Waste Management Program supports activities of other DOE organizations to assure a geologic repository is completed. Near-term goals for the Waste Management Program include solidifying liquid HLW (approximately 2,200 m^3 total) at the West Valley Demonstration Project in New York, which will be stored awaiting the opening of a geologic repository for disposal. In FY 1997, it is expected that about 120 canisters of HLW will be produced at West Valley. The benefit of this program is stabilizing HLW in a form suited for long-term storage pending disposal.

Transuranic Waste

Transuranic (TRU) waste is radioactive waste containing more than 100 nanocuries per gram of alpha-emitting isotopes with atomic numbers greater than 92 (uranium) and half-lives greater than 20 years. This waste is the result of fuel reprocessing or other research and development activities. For some TRU waste, little or no shielding is required; this waste is referred to as "contact-handled" TRU waste. On the other hand, there are TRU radionuclides which require shielding because of their gamma or neutron emissions. These are referred to as "remote-handled" TRU waste.

Relatively small amounts, about 550 cubic meters, of TRU waste are stored at West Valley. This is the largest concentration of non-defense TRU waste and represents about 50 curies of radioactivity. Other non-defense sites store a total of less than 100 cubic meters of TRU waste. The most pressing problem with non-defense TRU waste continues to be disposal. Because the volume of waste is small, it is not economically feasible to build a separate facility similar to the Waste Isolation Pilot Plant (WIPP) for disposal of non-defense TRU waste. However, legislation precludes disposal of the non-defense generated TRU waste at WIPP.

The near-term goal is to keep the waste in safe storage until a decision is made regarding the disposal of non-defense TRU. The long-term goal is to make the decision regarding the disposal of this waste and then begin implementation of that decision.

Low-Level Waste

Low-level waste (LLW) is defined as any radioactive waste which is not high-level waste, transuranic waste, spent nuclear fuel, or mill tailings. The Waste Management Program is responsible for the disposal of LLW from non-defense funded facilities, and for the operation of the National Low-Level Waste Program. The goal of the National LLW Program is to facilitate the establishment of a reliable nationwide system for management of commercially generated LLW by implementing responsibilities assigned to DOE under Public Law 99-240, "Title I Low-Level Radioactive Waste Policy Amendments Act of 1985." The Act assigned states the responsibility for providing, either individually or in cooperation with other states, disposal of LLW generated within their borders. Responsibilities assigned to DOE by the Act include technical and financial assistance to compacts and states in meeting their responsibilities, annual reporting to Congress on progress being made by states on LLW management in the U.S., certain administrative and financial functions, and disposal of the Greater-Than-Class-C LLW resulting from activities of licensed generators. The National Low-Level Waste Program will continue to provide technical assistance to states and compact regions by facilitating information exchange through the Host State Technical Coordinating Committee, the LLW Forum, and the Annual DOE LLW Management Conference; by preparing technical modules and reports on LLW management issues of interest to the states; by providing workshops, performance assessment assistance, liaison services, and assistance with state-specific requests; and by providing data systems support.

The Program will also continue to manage the surcharge rebate process and prepare the reports required by the Act. The Greater-Than-Class-C Low-Level Radioactive Waste Program will continue to develop storage and disposal capability for the Greater-Than-Class-C LLW and implement Greater-Than-Class-C sealed source storage. Interim storage can be provided on an urgent case-by-case basis for the Greater-Than-Class-C that poses an immediate threat to public health. Dedicated storage and treatment capability will be developed as required for long-term storage until disposal is feasible.

The benefits of this Program include safe storage and disposal of DOE waste and safe storage of commercially generated waste until disposal options are identified and implemented. Significant activities from the past year include publication of policy and procedures concerning rebates to states or compacts in accordance with milestones established in Public Law 99-240, and routine disposal of LLW from DOE research and development facilities.

Mixed Low-Level Waste

Mixed low-level waste consists of both hazardous (as defined by the Resource Conservation and Recovery Act) and radioactive (as defined by the Atomic Energy Act) components, and is not classified as high-level, low-level, or TRU mixed waste. The long-term goal for low-level mixed waste is to develop necessary treatment and disposal capacity needed to dispose of the existing inventory as well as newly generated waste.

PROGRAM MISSION - WASTE MANAGEMENT - NON-DEFENSE (cont'd)

Mixed Low-Level Waste - (cont'd)

The Department worked with the states, the Environmental Protection Agency (EPA), Indian Tribes, and stakeholders through the Federal Facility Compliance Act process and other mechanisms to develop a national configuration of mixed waste treatment facilities. The Department will have in place by 1997 35 Site Treatment Plans enforced by the state or EPA through compliance orders for the development of mixed waste treatment capacity. The Department is also continuing to work with the states, EPA, Indian Tribes, and stakeholders to determine location of disposal facilities. The near-term goal for mixed waste is to develop treatment capacity as outlined in the Site Treatment Plans and to complete site selection for disposal facilities. Many activities related to securing contracts with private vendors will be ongoing in FY 1997.

Hazardous and Sanitary Waste

Hazardous waste is defined by the Resource Conservation and Recovery Act (RCRA). It consists of waste, which because of its concentration or physical or chemical characteristics, may cause or contribute to mortality or illness or pose a substantial threat if not properly managed. Hazardous waste is primarily treated and disposed of by commercial vendors. Hazardous waste can be harmful to humans by chemically or physically attacking skeletal, nervous, or other bodily systems. In many ways, hazardous waste is more difficult to manage than radioactive waste because chemicals in waste may have an unknown synergistic effect and exposure cannot be easily monitored. The most common hazardous wastes generated by DOE include spent solvents, corrosives, ignitables, metals, specialty chemicals used by research and development laboratories, explosives, polychlorinated biphenyls (PCBs), and asbestos.

Sanitary waste is office waste, cafeteria waste, sewage, sewage sludges, plastic, wood, rubber, rags, and similar materials. Solid sanitary waste is disposed in approved sanitary landfills, and liquid sanitary waste is treated in wastewater treatment facilities prior to discharge in receiving streams. The Department uses both on-site and off-site disposal facilities for sanitary waste, treatment, and disposal.

The near- and long-term goals for the management of both hazardous and sanitary waste are the same: maintain regulatory compliance while treating and disposing of waste as it is generated. The mission of the hazardous/sanitary waste program has been realized and in FY 1997 activities continue. Efforts focusing on improvements to the efficiency of that program will be ongoing.

Three non-defense facilities appear on a list of the 10 largest hazardous waste generators: the Stanford Linear Accelerator Center (SLAC), Argonne National Laboratory-East (ANL-E), and the Energy Technology Engineering Center (ETEC). As shown in the budget request, the Waste Management Program is providing increased storage, treatment, or disposal capacity to meet the need or to replace existing facilities, which have reached the end of their design life. The past year's achievements include routine, compliant treatment, storage, and disposal of hazardous and sanitary waste at non-defense sites, and continued development of robust, effective, waste management programs at sites such as SLAC and ETEC.

PROGRAM MISSION - WASTE MANAGEMENT - NON-DEFENSE (cont'd)

The GOALS of the Non-Defense Waste Management program are:

1) To protect public and worker safety and health and the environment from the dangers of DOE's radioactive and hazardous waste. The Program will continue to make progress on reducing long-term risk by treating waste with the goal of ultimate disposal.
2) To work in partnership with our regulators and stakeholders to prioritize activities and find new approaches to the problems we face in order to reduce cost. The FY 1997 request was developed assuming that, for certain activities, a more cost-effective approach can be developed in cooperation with our regulators.
3) To perform activities related to treatment and disposal to move towards completion of mission.

The PERFORMANCE MEASURES related to these goals are:

The Office of Waste Management plans to measure success of its FY 1997 program by the amount of DOE waste it treats, stores, and disposes.

Specific Waste Treatment Activities include:

1) Continuing HLW Treatment at the West Valley Demonstration Project in FY 1997 to reduce risk associated with storage of liquid HLW;
   - Produce about 120 canisters of vitrified HLW through continued operations of the West Valley Demonstration Project.

2) Implementing Site Treatment Plans as negotiated through the Federal Facility Compliance Act (FFCAct) process;
   - Begin or accelerate mixed waste treatment at various DOE locations in response to the Federal Facility Compliance Act.
   - Secure contracts for private vendor treatment.

Specific Waste Storage and Disposal Activities include:

1) Assisting states and compact regions in fulfilling their responsibilities to establish a national LLW management system for commercially-generated LLW under Public Law 99-240.

The following list defines the funding categories used in this budget by the Office of Waste Management. The Program is planning to change these categories in the near future to align the description of work performed to waste type.

Program Management

The Program Management Category provides a number of management support activities to the Waste Management Program. This category includes strategic and long-range planning activities, technical expertise on Safety and Environmental documentation preparation and review. Also included in program support is funding to cover Federal Facilities Compliance Act and other compliance activities associated with the DOE Waste Management Program.

The near-term goal is to have sufficient support and oversight so that no environmental, health or safety non-compliances occur. The benefits include adequate support for management control, planning, cost reviews and identification of environment, safety or health issues, which can be dealt with in a reasoned and structured manner.

Facility Operations and Maintenance

This budget category funds the routine operation and maintenance of treatment and storage facilities for all waste types at non-defense funded facilities. Disposal facilities are not funded in this budget. Waste is either disposed off-site or held in storage pending the opening of disposal facilities, such as those that are needed for high-level and transuranic waste. Facility operations and maintenance includes a comprehensive set of base program activities essential to assure effective and efficient operation of DOE waste management facilities. Examples of activities funded include securing permits and preparation of reports required by environmental regulations, general training and support of technical contractor staff, operation and maintenance of facilities needed to treat HLW, LLW, mixed waste, sanitary or hazardous wastes.

Near-term goals for these activities include routine treatment, storage and disposal of all waste types, including reducing the backlog of low-level waste, continuing the PCB cleanup at the Fermi Main Accelerator Ring, which should be completed in FY 1999, and completing 78 percent of the B-cell restoration project at Richland. The benefits of these activities are that they provide a compliant treatment, storage, and disposal system that protects the health and safety of workers, the public and the environment, while reducing risk and protecting the environment.

New Facilities

This program category includes the costs of engineering studies, designs, and construction costs of new projects and modifications to existing facilities needed for waste management operations. It also includes any environmental impact documentation, Safety Analysis Reviews (SAR) and Operational Readiness Review (ORR) necessary to construct and begin operations of a new or substantially modified facility. Once the facility is operating, all of annual and outyear costs, including capital equipment not related to construction, will be funded under the Facilities Operations and Maintenance budget.

A major milestone was completion of construction of the waste management facility at Brookhaven in FY 1996. The benefits of completing these activities are that they will replace aging facilities, which could become non-compliant and will provide needed expanded capacity to compliantly manage waste.

West Valley Demonstration Project

The goal of the West Valley Demonstration Project is to demonstrate solidification for disposal of High-Level Waste (HLW) under the provisions of Public Law 96-368, the "West Valley Demonstration Project Act" enacted in 1980. The project is implementing an integrated production-scale development and demonstration project for treating the 660,000 gallons of alkaline and acidic liquid HLW stored at the Western New York Nuclear Service Center, near West Valley, New York. The Center reprocessed spent nuclear fuel from 1966 to 1972. By virtue of demonstrating the solidification of liquid HLW, the hazards associated with continued storage of the liquid wastes at the Center will be eliminated. Major activities embodied in the project include: (1) decontamination required to prepare existing facilities and equipment; (2) removal of the wastes from the underground storage tanks; (3) development, design, construction, and operation of systems for solidification of the waste; (4) acquisition of disposal containers; (5) temporary storage and transportation of the solidified waste; (6) decontamination and decommissioning (D&D) of the waste tanks, facilities, hardware, and material used in carrying out the project; and (7) disposal of LLW and transuranic (TRU) waste produced from project activities.

PROGRAM MISSION - WASTE MANAGEMENT - NON-DEFENSE (cont'd)

National Low-Level Waste

The National Low-Level Waste (LLW) Program provides timely and effective implementation of DOE responsibilities mandated by Public Law 99-240 and provides technical assistance to the states in meeting their responsibilities for management and disposal of their LLW.

Solid Waste

Funds provided under this budget category address Corrective Activities necessary to bring out-of-compliance non-defense facilities into compliance with RCRA, TSCA, provisions of the Hazardous and Solid Waste Amendment's, State and Local Ordinances, and DOE Orders. Only one project continues to be funded under this budget, and no new Corrective Activities will be requested.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(dollars in thousands)

WASTE MANAGEMENT

WASTE TYPE	FY 1995 ESTIMATE	FY 1995 %	FY 1996 ESTIMATE	FY 1996 %	FY 1997 ESTIMATE	FY 1997 %
High-Level	77,800	41%	79,784	56%	79,676	58%
Transuranic	4,819	3%	2,283	2%	1,546	1%
Mixed Low-Level	21,741	11%	6,560	5%	6,777	5%
Low-Level	85,523	45%	54,730	38%	50,239	36%
TOTAL *	189,883	100%	143,357	100%	138,238	100%

* Totals include treatment, storage, and disposal only. Total does not include non-TSD activities associated with each waste type or Headquarters funding.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(dollars in thousands)

WASTE MANAGEMENT

WASTE TYPE	FY 1995 ESTIMATE	%	FY 1996 ESTIMATE	%	FY 1997 ESTIMATE	%
Treatment	92,127	49%	68,567	48%	59,945	43%
Storage	82,303	43%	64,359	45%	70,127	51%
Disposal	15,453	8%	10,432	7%	8,166	6%
TOTAL	189,883	100%	143,358	100%	138,238	100%

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, narrative in whole dollars)

WASTE MANAGEMENT - NON-DEFENSE

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Program Management	$ 6,595	$ 4,600	$ -2,567 b/	$ 2,033	$ 1,150
Facility Operations and Maintenance	73,886	46,533	-934	45,599	57,887
New Facilities	2,964	2,509	-1,428	1,081	1,911
West Valley Demonstration Project	124,902	115,389	0	115,389	123,601
National Low-Level Waste	7,088	2,865	0	2,865	4,958
Solid Waste	600	0	+450	450	3,292
Subtotal, Operations & Maintenance	216,035	171,896	-4,479	167,417	192,799
Construction	52,393	5,806	+291	6,097	6,224
SUBTOTAL, Waste Management	$268,428	$177,702	$ -4,188	$173,514	$199,023
Corrective Activities (Solid Waste)	0	4,339 a/	-4,339	0	0
TOTAL, Waste Management	$268,428	$182,041	$ -8,527 c/	$173,514	$199,023

Public Law Authorizations:
Pub. Law 95-91, Department of Energy Organization Act (1977)
Pub. Law 96-363, West Valley Demonstration Act (1980)
Pub. Law 104-146, The Energy and Water Development Appropriations Act, Fiscal Year 1996.

a/ Includes $339,000 in Project 92-E-601 and $4,000,000 in Project 88-R-830, which were appropriated under the Corrective Activities Budget.
b/ Transfer of the Waste Minimization Program to the Office of Site Operations.
c/ $5,183,000 transfers the Spent Nuclear Fuel Program to the Office of Nuclear Material and Facilities Stabilization and $777,000 reflects use of current year appropriation to meet uncosted obligations.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, narrative in whole dollars)

WASTE MANAGEMENT - NON-DEFENSE

PROGRAM FUNDING BY SITE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
ALBUQUERQUE OPERATIONS OFFICE					
Inhalation Toxicology Research Institute (NM)	$ 654	$ 630	$ -26	$ 604	$ 596
Subtotal, ALBUQUERQUE	$ 654	$ 630	$ -26	$ 604	$ 596
CHICAGO OPERATIONS OFFICE					
Ames Laboratory (IA)	670	300	0	300	315
Argonne National Laboratory (East) (IL)	16,107	8,360	-777	7,583	10,692
Argonne National Laboratory (West) (ID)	3,410	2,854	0	2,854	5,270
Brookhaven National Laboratory (NY)	11,202	5,016	0	5,016	5,850
Fermi-Lab (IL)	5,020	1,950	0	1,950	2,102
Princeton Plasma Physics Lab (NJ)	7,918	2,371	0	2,371	5,925
Chicago Operations Office (IL)	18	3,176	-1,676	1,500	500
Subtotal, CHICAGO	$ 44,345	$ 24,027	$ -2,453	$ 21,574	$ 30,654
IDAHO OPERATIONS OFFICE					
Idaho Operations Office (ID)	5,610	8,048	-5,183	2,865	4,958
Subtotal, IDAHO	$ 5,610	$ 8,048	$ -5,183	$ 2,865	$ 4,958
OAKLAND OPERATIONS OFFICE					
Energy Technology Engineering Center (CA)	3,741	1,668	0	1,668	2,908
Lawrence Berkeley National Lab (CA)	8,725	5,153	0	5,153	6,134
Laboratory for Energy-Related Health Research (CA)	0	277	0	277	183
Stanford Linear Accelerator Center (CA)	4,370	2,744	0	2,744	3,419
Oakland Operations Office (CA)	2,289	1,398	-865	533	650
Subtotal, OAKLAND	$ 19,125	$ 11,240	$ -865	$ 10,375	$ 13,294

PROGRAM FUNDING BY SITE - WASTE MANAGEMENT - NON-DEFENSE (cont'd)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
OAK RIDGE OPERATIONS OFFICE					
Oak Ridge National Laboratory (TN)	51,505	6,818	+4,339	11,157	14,414
Subtotal, OAK RIDGE	$ 51,505	$ 6,818	$ +4,339	$ 11,157	$ 14,414
OHIO FIELD OFFICE					
Ohio Field Office (OH)	124,723	115,389	0	115,389	123,601
Subtotal, OHIO	$124,723	$115,389	$ 0	$115,389	$123,601
RICHLAND OPERATIONS OFFICE					
Richland Operations Office (WA)	18,178	11,550	0	11,550	11,506
Subtotal, RICHLAND	$ 18,178	$ 11,550	$ 0	$ 11,550	$ 11,506
HEADQUARTERS					
Headquarters (DC)	$ 4,288	$ 0	$ 0	$ 0	$ 0
SUBTOTAL, Waste Management	$268,428	$177,702	$ -4,188	$173,514	$199,023
Corrective Activities (Solid Waste)					
OAK RIDGE OPERATIONS OFFICE					
Oak Ridge National Laboratory (TN)	0	4,339	-4,339	0	0
TOTAL, Waste Management	$268,428	$182,041	$ -8,527	$173,514	$199,023

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WASTE MANAGEMENT - NON-DEFENSE

ALBUQUERQUE

I. Mission Supporting Goals and Objectives

The Albuquerque Operations Office has only one site funded in the Energy Supply, Research and Development Appropriation: the Inhalation Toxicology Research Institute (ITRI). The ITRI conducts studies on the health effects of inhaling potentially hazardous airborne materials. The studies may include radioactive material, insulating materials, diesel exhaust emissions or other substances from energy production or conservation technologies. The research activities produce very small amounts of biomedical, transuranic, mixed, low-level, hazardous and sanitary waste.

Like the rest of the non-defense laboratories, ITRI generates only small volumes of waste. Historically, its waste management program lacked credibility for a variety of reasons, and the establishment of such a program has been a priority for the past several years. In this regard, ITRI has been successful because almost all waste types are now managed under environmental regulations as they are generated.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Facility Operations and Maintenance	$ 654	$ 604	$ 596	$ -8	-1%
TOTAL, Albuquerque	$ 654	$ 604	$ 596	-8	-1%

III. Performance Summary

FY 1995 Accomplishments

- Treated, stored, and disposed 6 metric tons of RCRA hazardous, 5 m^3 mixed and 46 m^3 radioactive waste at ITRI.
- Initiated shipments of 18 m^3 radioactive waste from ITRI to the Nevada Test Site (NTS).

III. Performance Summary - Albuquerque (cont'd)

FY 1996 Accomplishments (To Date and Planned)

- Continue treatment, storage, and disposal of hazardous, radioactive, and mixed waste.
- Continue disposal of approximately 20 m^3 of LLW inventory at NTS.

FY 1997 Planned Accomplishments

- Continue treatment, storage, and disposal of hazardous, radioactive, and mixed waste and disposal of 22 m^3 LLW inventory at NTS ..... $ 596

TOTAL, ALBUQUERQUE ..... $ 596

Explanation of Funding Changes FY 1996 to FY 1997

- None

Major Issues

- None

1953

CHICAGO

I. Mission Supporting Goals and Objectives

The Chicago Operations Office manages six sites: Ames Laboratory in Iowa, Argonne National Laboratory-East (ANL-E) in Illinois, Argonne National Laboratory-West (ANL-W) in Idaho, Brookhaven National Laboratory (BNL) in New York, Fermi National Accelerator Laboratory (FERMI-LAB) in Illinois, and the Princeton Plasma Physics Laboratory (PPPL) in New Jersey. These six facilities are laboratories devoted to fundamental and applied research in high energy physics, energy production from fusion and biological and medical research. The main types of waste associated with these facilities are low-level, mixed low-level, hazardous and sanitary wastes.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 18	$ 1,500	$ 500	$-1,000	-67%
Facilities Operations and Maintenance	30,158	18,752	26,979	+8,227	+44%
New Facilities	14,169	1,322	3,175	+1,853	+140%
TOTAL, Chicago	$ 44,345	$ 21,574	$ 30,654	$+9,080	+42%

III. Performance Summary

FY 1995 Accomplishments

- Established baselines for waste management programs at the Chicago sites to ensure compliant treatment, storage, and disposal activities for Hazardous, Low-Level, Transuranic, and Mixed Wastes.
  - Shipped and disposed at Hanford approximately 12,000 m^3 of annually generated LLW from the Ames Laboratory, ANL-E, ANL-W, BNL, FERMI-LAB, and PPPL.
  - Disposed of approximately 275 tons of annually generated hazardous waste.
- Repackaged and disposed of approximately 450 m^3 of legacy LLW from ANL-E and BNL to Hanford in FY 1995.
- Completed Proposed Site Treatment Plans as required by the FFCAct of 1992.
- Completed canal sludge pond re-connection at ANL-E.

III. Performance Summary - Chicago (cont'd)

FY 1995 Accomplishments - (cont'd)

- Initiated physical construction on Waste Management construction projects at several sites as follows:

  - Rehabilitation of Waste Management Building #306, ANL-E, Project No. 91-E-600.
  - Sanitary Waste Water Treatment Plant Improvements, ANL-E, Project No. 91-E-304.
  - Waste Management Facility, BNL, Project No. 91-E-305.
  - New Radioactive Waste Handling Facility, PPPL, Project No. 95-E-601.
  - Radioactive Waste Handling Building, Fermi-Lab, Project No. 94-E-601.

FY 1996 Accomplishments (To Date and Planned)

- Complete construction of new Waste Management Facility at BNL, Project No. 91-E-315, to replace existing facilities, which are to be remediated per an Interagency Agreement between DOE, the Environmental Protection Agency, and the State of New York.
- Complete construction of new Radioactive Waste Handling Building at Fermi-Lab, Project No. 94-E-601, to provide LLW storage, sorting and handling.
- Complete construction of Radioactive Waste Handling Facility at PPPL, Project No. 95-E-601, to provide safe and sufficient storage capacity for LLW.
- Complete construction of Radioactive and Mixed Waste Storage Facilities at ANL-E, Project No. 91-E-602, to provide compliant storage for these waste streams.
- Complete rehabilitation of LLW handling area in the ANL-E waste management facility.
- Complete floor drain re-connection at BNL, Project No. 93-E-632.

FY 1997 Planned Accomplishments

• Continue to store and dispose of hazardous, mixed and radioactive waste generated by laboratory research, and provide a safe and effective Waste Management Program at ANL-E, ANL-W, BNL, PPPL, FERMI-LAB, and the Ames Laboratory	$22,311
• Operate Sodium Processing Facility (SPF) to treat 70,000 gallons of bulk sodium (ANL-W)	2,070
• Complete installation of 100 new liners with cathodic protection to prevent soil contamination from sodium, spent fuel, spent fuel slugs, and sodium/potassium (NaK) metal. Sodium and spent fuel require remote-handling (ANL-W)	299
• Rehabilitate liquid LLW area in the Waste Management Building (ANL-E)	2,167
• Dispose of annually generated (about 33,000 ft^3) low-level radioactive waste (ANL-E, ANL-W, BNL, Fermi-Lab, Ames)	2,997
• Construct stormwater detention cell at PPPL	450
• Begin design of Waste Handling Facility, Project No. 97-E-600, to consolidate waste handling and storage at the site (ANL-W)	360
TOTAL, CHICAGO	$30,654

1995

III. Performance Summary - Chicago (cont'd)

Explanation of Funding Changes FY 1996 to FY 1997

- Increased FY 1997 funding initiates operation of the Sodium Processing Facility to treat 70,000 gallons of bulk sodium at ANL-W ($2M), completes on going rehabilitation of the Waste Management building at ANL-E ($2.1M), designs the Waste Handling Facility at ANL-W ($0.3M), completes construction of the storm water detention cell at PPPL ($0.4M); and disposes of LL legacy waste at BNL ($0.8M).

Major Issues

- None

IDAHO

I. Mission Supporting Goals and Objectives

The Idaho Operations Office manages the National Low-Level Waste Program. The purpose of the National Low-Level Waste Management Program is two-fold: (1) to provide technical and financial assistance to states and compact regions in fulfilling their responsibilities to establish a national LLW management system under Public Law 99-240; and (2) to plan for disposal options of the Greater-Than-Class-C LLW to mitigate public health and safety hazards from such waste. This purpose directly supports Waste Managements goals and objectives that are outlined in the Program Mission. The key goals and objectives of the National Low-Level Waste Management Program include providing relevant workshops at the request of states, providing information exchange opportunities through such mechanisms as the Host State Technical Coordinating Committee and the Annual DOE Conference on LLW Management, and providing for the disposal of the Greater-Than-Class-C LLW and mitigation of public health and safety risks from such waste by implementing sealed source storage and management at the Los Alamos National Laboratory.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
National Low-Level Waste	$ 5,610	$ 2,865	$ 4,958	$ +2,093	+73%
TOTAL, Idaho	$ 5,610	$ 2,865	$ 4,958	$ +2,093	+73%

III. Performance Summary

FY 1995 Accomplishments

- Completed a total of 25 workshops requested by states and compact regions.
- Conducted the 16th Annual DOE Conference on LLW Management and to date held two meetings with the Host State Technical Coordinating Committee and the LLW Forum.
- Developed program strategy for the Greater-Than-Class-C LLW and sealed source management.

FY 1996 Accomplishments (To Date and Planned)

- Complete all workshops requested by states and compact regions. Current plan is for approximately 20 workshops in FY 1996.
- Conduct the 17th Annual DOE Conference on LLW Management and three meetings each of the Host State Technical Coordinating Committee and the LLW Forum.
- Begin operation of sealed source storage.

III. Performance Summary - Idaho (cont'd)

FY 1997 Planned Accomplishments	
• Support the National Low-Level Waste Program for hazardous, radioactive, and mixed waste	$ 4,958
TOTAL, IDAHO	$ 4,958

Explanation of Funding Changes FY 1996 to FY 1997

- The FY 1997 level of effort remains the same as FY 1996.
- The apparent increase in funds is due to the program's use of uncosted balances in FY 1996 to level workload between FY 1995 and FY 1997.

Major Issues

- None

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OAKLAND

I. Mission Supporting Goals and Objectives

The Oakland Operations Office manages waste operations at the Laboratory for Energy-Related Health Research (LEHR), Lawrence Berkeley National Laboratory (LBNL), Lawrence Livermore National Laboratory (LLNL), Energy Technology Engineering Center (ETEC), and the Stanford Linear Accelerator Center (SLAC). The laboratories perform research in health effects of radiation exposure, energy research and high energy particle physics. The sites generate small volumes of radioactive, hazardous and sanitary waste.

For a variety of reasons, the establishment and maintenance of a rigorous, compliant waste management program is the major issue facing small sites. The ability of small sites to manage their waste is further challenged by the fact that due to the experiments they conduct, they produce a large number of small volume waste streams. The characterization, monitoring and other environmental requirements are the same whether a waste stream has an inventory of one or ten or 100,000 cubic meters. In addition, the State of California has an expanded list of chemicals it considers to be hazardous, and more material must be classified as hazardous waste in California than RCRA requires. This contributes to an increase in the cost of managing the waste. In the past year, however, the sites maintained compliance in the storage and disposal of wastes that were shipped off-site.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 2,289	$ 533	$ 650	$ +117	+22%
Facilities Operations and Maintenance	15,122	9,171	12,644	+3,473	+37%
New Facilities	1,714	671	0	-671	-100%
TOTAL, Oakland	$ 19,125	$ 10,375	$ 13,294	$ +2,919	+28%

III. Performance Summary

FY 1995 Accomplishments

- Completed and initiated building construction activities for the Hazardous Waste Handling Facility (HWHF) at LBL, Project No. 88-R-812.
- Completed site work design for the Radioactive and Mixed Waste Storage Facility General Plant Project at SLAC.
- Initiated design activities for the construction of the Wet Vapor Nitrogen Cleaning System to treat and manage sodium contaminated materials at ETEC.

III. Performance Summary - Oakland (cont'd)

FY 1996 Accomplishments (To Date and Planned)

- Complete operational testing and begin operation of the Hazardous Waste Handling Facility (Project No. 88-R-812) at LBNL.
- Complete construction and testing of the New Radioactive and Mixed Waste Storage Facility at SLAC.

FY 1997 Planned Accomplishments

- Continue Waste Management Program at LBNL ($6.1M), SLAC ($3.4M), ETEC ($2.9M), and LEHR ($0.1M) to provide for the safe treatment, storage, transportation, and disposal of Hazardous, Radioactive, TRU, and mixed waste. Complete the transfer of operation from the old Hazardous Waste Handling Facility to the new Hazardous Waste Handling Facility .... $ 13,294

TOTAL, OAKLAND ..... $ 13,294

Explanation of Funding Changes FY 1996 to FY 1997

- Environmental Management becomes Landlord in FY 1997 at ETEC and $1.3 million will be used to process additional waste as a result of cleanup efforts.
- Additional $1.4 million will be used at LBNL to meet requirements of LBNL's Site Treatment Plan.
- Additional $.5 million to package and dispose of legacy waste before SLAC operates New Radioactive Waste Storage Facility.

Major Issues

- None

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OAK RIDGE

I. Mission Supporting Goals and Objectives

The Oak Ridge National Laboratory (ORNL) non-defense funded waste management activities primarily involve storage of hazardous waste, and treatment of gaseous, radiological and non-radiological process waste. Major activities in FY 1997 include upgrades to the Sanitary Sewer System, Project No. 93-E-633, final construction of the Bethel Valley Liquid LLW Collection and Transfer System Upgrades, Project No. 88-R-830, and the start-up of the Melton Valley LLW Collection and Transfer System Upgrade, Project No. 92-E-601. These activities will bring the systems into compliance with a consent decree and the Federal Facility Agreement, respectively.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Facility Operations and Maintenance	$ 12,314	$ 9,280	$ 9,386	$ +106	+1%
New Facilities	12,491	1,088	1,736	+648	-59%
Solid Waste	26,700	789	3,292	+2,503	+317%
TOTAL, Oak Ridge	$ 51,505	$ 11,157	$ 14,414	$ +3,257	+29%

III. Performance Summary

FY 1995 Accomplishments:

- Provided regulatory compliant treatment of gaseous waste, 285,000 m^3 of liquid radiological, and 665,000 m^3 of non-radiological process waste. Provided collection, transportation, and storage of 56 m^3 of hazardous waste at ORNL.
- Initiated construction associated with the Bethel Valley Federal Facility Agreement Upgrades, Project No. 94-E-602.
- Performed design or construction activities for General Plant Projects to upgrade waste management facilities.
- Provided support for design construction and operational reviews for the Melton Valley Liquid LLW Collection and Transfer System upgrade project in accordance with DOE Order 4700.1.
- Submitted design assessment to the Environmental Protection Agency and Tennessee for Phase II activities at the Bethel Valley Liquid LLW Collection and Transfer System upgrade project.

III. Performance Summary - Oak Ridge (cont'd)

FY 1996 Accomplishments (To Date and Planned):

- Continue at a minimal level of effort regulatory compliant treatment of gaseous and liquid radiological and non-radiological process waste and collection, transportation, and storage of hazardous waste at ORNL. Defer offsite shipment and treatment of waste until FY 1997.
- Continue construction of the Bethel Valley Federal Facility Agreement Upgrade, Project No. 94-E-602.
- Continue design and construction of General Plant Projects to upgrade facilities. Five upgrades will be completed.
- Complete construction of the Melton Valley Liquid LLW Collection and Transfer System Upgrade, Project No. 92-E-601.
- Provide System Safety Analysis and Operational Procedures for the Melton Valley Liquid LLW Collection and Transfer System project.
- Continue construction of the Bethel Valley Liquid LLW Collection and Transfer Systems Upgrades, Project No. 88-R-830.
- Continue construction of the Sanitary Waste System Upgrade, Project No. 93-E-633, at ORNL to meet the National Pollution Discharge Elimination System permit in accordance with a consent decree issued under a lawsuit.

FY 1997 Planned Accomplishments

• Continue regulatory compliant treatment of gaseous and liquid process waste (radiological: about 285,000 m^3; and non-radiological: about 665,000 m^3). Continue off-site shipments of hazardous waste to K-25 Site for storage and treatment at the Toxic Substances Control Act (TSCA) Incinerator; continue operation, maintenance, and surveillance of hazardous waste storage facilities; continue collection and transportation of hazardous waste (about 56 m^3) at ORNL	$ 8,747
• Continue construction of portions of the Bethel Valley Federal Facility Agreement Upgrade, Project No. 94-E-602	1,556
• Prepare ORNL portions of annually required waste minimization report and Waste Management Plan and coordinate and provide support for pollution prevention activities	639
• Complete construction of the Sanitary Waste System Upgrade, Project No. 93-E-633, at ORNL to meet the National Pollution Discharge Elimination System permit in accordance with a consent decree issued under a lawsuit	180
• Complete construction of the Bethel Valley Liquid LLW Collection and Transfer System Upgrade, Project No. 88-R-830, and provide system safety analysis and operational procedures	3,067
• Initiate start-up and system testing of equipment affected by the Melton Valley Liquid LLW Collection and Transfer System Upgrade, Project No. 92-E-601	225
TOTAL, OAK RIDGE	$ 14,414

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WASTE MANAGEMENT - NON-DEFENSE

III. Performance Summary - Oak Ridge (cont'd)

Explanation of Funding Changes FY 1996 to FY 1997

- Funding increase is due to resumption of offsite shipment and treatment of hazardous waste.

Major Issues

- None

OHIO

I. Mission Supporting Goals and Objectives

The West Valley Demonstration Project (WVDP) is located at the Western New York Nuclear Service Center near West Valley, New York. The Center reprocessed SNF from 1966 to 1972. The purpose of the project is to demonstrate an integrated production scale project to vitrify 660,000 gallons of HLW. The most significant milestone is the commencement of vitrification operations currently scheduled for FY 1996 and completion of vitrification in 1998. The benefit of this project is the conversion of a liquid waste form into a more stable solid waste form amenable to long term storage pending development of a geologic repository.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
West Valley Demonstration Project	$124,902	$115,389	$123,601	$ +8,212	+7%
TOTAL, Ohio	$124,902	$115,389	$123,601	$ +8,212	+7%

III. Performance Summary

FY 1995 Accomplishments:

- Successfully completed six years of pretreatment operations at the West Valley Demonstration Project.
- Completed transfer and wash of acid waste.
- Completed melter warm-up.
- Initiated zeolite mobilization and transfer.
- Completed construction of Vitrification Facility/NOX Facility.

FY 1996 Accomplishments (To Date and Planned):

- Complete vitrification facility non-radioactive testing.
- Conduct DOE Operational Readiness Review for the Vitrification facility.
- Begin vitrification radioactive tie-ins in April 1996.
- Complete production of the first radioactive canister in June 1996.
- Publish Phase II Draft Environmental Impact Statement (EIS).

III. Performance Summary - Ohio (cont'd)

FY 1997 Planned Accomplishments:

• Operate site safely and compliantly; publish Phase II EIS Record of Decision	$ 76,801
• Solidify about 120 canisters of liquid High-Level Waste	46,800
TOTAL, OHIO	$123,601

Explanation of Funding Changes FY 1996 to FY 1997

- Increase in FY 1997 budget provides for increase in production of radioactive waste canisters, from 30 canisters in FY 1996 to a full year's production of 120 canisters in FY 1997.

Major Issues

- None

RICHLAND

I. Mission Supporting Goals and Objectives

The Battelle Memorial Institute provides science and technology laboratory services to the Hanford Site at the Pacific Northwest Laboratory (PNL). Hot cells there are used for a variety of radioactive analyses required by on and offsite missions, including cesium and strontium isotope capsules. The FY 1997 funding will continue routine waste management operations and the cleanout and restoration activities of the 324-B Cell. The 324-B cleanout activities includes remote disassembly of highly contaminated equipment and the packaging of highly radioactive debris for storage and disposal.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Facilities Operations and Maintenance	$ 18,178	$ 11,550	$ 11,506	$ -44	0%
TOTAL, Richland	$ 18,178	$ 11,550	$ 11,506	$ -44	0%

III. Performance Summary

FY 1995 Accomplishments:

- Cleared 74 percent of the B-Cell floor area through activities such as removing turntables, and constructing temporary full storage systems.

FY 1996 Accomplishments (To Date and Planned):

- 324 B-Cell floor area will be 80 percent cleared through cleanup activities such as removing fuel thimble storage rack and removing the 1A rack.

FY 1997 Planned Accomplishments:

• Will clear 88 percent of dispersable contamination from B-Cell floor area through various ongoing activities	$11,506
TOTAL, RICHLAND	$11,506

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III. Performance Summary - Richland (cont'd)

Explanation of Funding Changes FY 1996 to FY 1997

- None

Major Changes

- None

HEADQUARTERS

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 2,810	$ 0	$ 0	$ 0	$ 0%
Low-Level Waste	1,478	0	0	0	0%
TOTAL, Headquarters	$ 4,288	$ 0	$ 0	$ 0	0%

III. Performance Summary

FY 1995 Accomplishments:

- Provided for General Support Services to Headquarters Technical Staff.
- Provided support to the National Low-Level Waste Program.

FY 1996 Accomplishments (To Date and Planned):

- Eliminate Non-Defense funding of General Support Services contractors.

FY 1997 Planned Accomplishments:

- No activity.

Explanation of Funding Changes FY 1996 to FY 1997

- None

Major Issues

- None

WASTE MANAGEMENT - NON-DEFENSE

CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY

Capital Project Summary Listing:

	FY 1995	FY 1996	FY 1997	$ Change	% Change
Operating and Maintenance:					
General Plant Projects:	$ 2,040	$ 614	$ 749	+135	+22%
Capital Equipment Estimate:	2,793	261	3,337	-3,076	-118%
Project Related Costs					
1. CDRs	0	0	0	0	0%
2. "Bridge" Costs	0	0	0	0	0%

Construction Funded:

Project No.	Project Title	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Unapprop. Balance
97-E-600	ANL Waste Handling Facility, CH	$ 3,210	$ 0	$ 0	$ 0	$ 360	$ 2,850
95-E-601	Radioactive Waste Handling Facility, PPPL	1,937	0	1,937	0	0	0
94-E-601	Waste Handling Building, Fermi-Lab	3,500	971	2,500	0	0	29
94-E-602	Bethel Valley Federal Fac. Agreement Upgrades, ORNL	22,000	3,494	7,000	300	1,106	10,100
93-E-632	Laboratory Floor Drain Collection System Upgrades, BNL	2,613	2,010	571	0	0	32
93-E-633	Upgrade Sanitary Sewer System, ORNL	16,000	8,794	4,000	0	0	3,206
92-E-601	Melton Valley LLLW Collection and Transfer System Upgrade, ORNL	41,000	31,561	9,100	339	0	0
91-E-305	Waste Management Facilities Project, BNL	16,310	10,969	5,160	0	0	181
91-E-322	329 Building Compliance, PNL, RL	10,000	9,047	900	0	0	53
91-E-600	Rehabilitation of Waste Management Bldg, 306, ANL	11,274	3,064	0	787	2,066	5,357

NOTE: The FY 1995 Adjusted Column includes use of prior year funds for uncosted.

WASTE MANAGEMENT - NON-DEFENSE - CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY (cont'd)

Project No.	Project Title	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Unapprop. Balance
Construction Funded (cont'd)							
91-E-602	Hazardous, Radioactive, and Mixed Waste Storage Facility, ANL	$ 12,900	$ 5,050	$ 3,600	$ 0	$ 0	$ 4,250
88-R-812	Hazardous Waste Handling Facility, LBL	13,125	11,829	625	671	0	0
88-R-830	Bethel Valley Liquid Low-Level Waste Collection and Transfer System Upgrade, ORNL	65,000	37,205	17,000	4,000	2,692	4,103
	Subtotal, Construction Funded		$123,994	$ 52,393	$ 6,097	$ 6,224	$ 30,161
Operating Expense Funded:							
	West Valley Demonstration Project, West Valley, NY	N/A	$ 890,382	$124,902	$115,389	$123,601	$ N/A
TOTAL, Waste Management - Non-Defense			$1,014,376	$177,295	$121,486	$129,825	$ 30,161
TOTAL NUMBER OF LINE-ITEMS				(12)	(6)	(5)	

1970

Waste Management - Non-Defense General Plant Project Funding

	1 Site Listing	2 FY 1994 Obligations	3 FY 1995 Estimated Obligations	4 FY 1996 Estimated Obligations	5 FY 1997 Budget Request
A	Chicago Operations Office	$ 292	$ 351	$ 535	$ 749
B	Oak Ridge Operations Office	1,100	600	79	0
C	Oakland Operations Office	600	1,089	0	0
		$ 1,992	$ 2,040	$ 614	$ 749

WASTE MANAGEMENT - NON-DEFENSE
(obligations in thousands)

OBJECT CLASS SUMMARY

Direct Obligation:		FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Personnel Compensation:						
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.9	Total Personnel Compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13.0	Benefits for former personnel	0	0	0	0	0
21.0	Travel and transportation of persons	0	0	0	0	0
22.0	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Communications, utilities, and misc charges	0	0	0	0	0
24.0	Printing and reproduction	0	0	0	0	0
25.4	Operation of GOCOs	211,202	212,923	166,542	171,021	189,462
25.5	Research and development	0	0	0	0	0
26.0	Supplies and materials	0	0	0	0	0
31.0	Equipment	2,793	2,793	261	261	3,337
32.0	Land and structures	54,433	59,343	6,711	10,759 a/	6,224
33.0	Investments and loans	0	0	0	0	0
42.0	Insurance claims and indemnities	0	0	0	0	0
Subtotal, Direct Obligations		268,428	275,059	173,514	182,041	199,023

a/ Includes $4,339,000 of which $339,000 in Project No. 92-E-601 and $4,000,000 in Project No. 88-R-830, which was appropriated under the Corrective Activities budget.

OBJECT CLASS SUMMARY - WASTE MANAGEMENT - NON-DEFENSE (Cont'd)

		FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Direct Obligation:						
99.0	Reimbursable Obligations	0	0	0	0	0
99.9	Total Obligations	$268,428	$275,059	$173,514	$182,041	$199,023
	Recovery of prior year obligations	0	0	0	0	0
	Unobligated balance available, start of year	0	0	0	0	0
	Unobligated balance available, end of year	0	0	0	0	0
	Budget Authority	$268,428	$275,059	$173,514	$182,041	$199,023

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ENVIRONMENTAL MANAGEMENT

PROJECT DATA SHEETS

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1974

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF WASTE MANAGEMENT
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: ANL-W Waste Handling Facility,
Argonne National Laboratory-West, INEL, Idaho

2a. Project No.: 97-E-600
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1997

3b. A-E Work (Title I and II) Duration: 6 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None.
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 1st Qtr. FY 1998

4b. Date Construction Ends: 4th Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $ 3,210
TPC -- $ 3,490

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1997	$ 360		$ 360	$ 360
1998	2,850		2,850	2,850

8. Project Description, Justification and Scope

The proposed ANL-W Waste Handling Facility (WHF) will be located at the north end of the site, east of the Northgate Road extension, west of the earth and rubble mound. The facility will contain a hazardous waste storage area; a contact-handled radioactive waste storage area; a municipal sanitary waste (cold waste) sorting area; an excess items (non-radioactive, non-hazardous) storage area; and offices.

1975

8. Project Description, Justification and Scope (continued)

A centralized waste handling facility is necessary to ensure compliance of ANL-W methods to waste collection, storage, and disposal requirements imposed by the Department of Energy, federal and state regulations. Waste handling operations are currently scattered throughout the site in various facilities, temporary trailers, and outside storage areas. There is no waste handling facility available that provides the necessary storage and handling functions. The proposed facility will streamline all waste routes, minimizing both shipments and waste generation. Additionally, it will provide properly designed areas for storage of wastes awaiting shipment and a monitoring and packaging facility for solid and hazardous wastes.

Because of lack of space, there is no other area available for the categorization and storage of wastes generated by ANL-W operations. The only alternative to this facility would be to handle wastes generated by ANL-W operations under the existing program, which allows the opportunity for wastes to be improperly placed into the wrong waste stream, to exceed allowable storage time prior to disposal, and to be stored in areas not in compliance with state and federal regulations. While hand surveying items to detect radiation is currently being performed on all wastes leaving the site, this process is very labor intensive, time consuming, and not as accurate as the methods provided with this facility. This facility will allow all but large items (such as construction debris) to be surveyed using specialized, sensitive detection apparatus. This relieves the Health Physics personnel from the burden of hand surveying typical office wastes and increases the accuracy of detection. The personnel sorting the wastes will be trained to identify wastes that should not be allowed to enter the landfill, such as recyclable (including batteries) and hazardous wastes that were improperly disposed.

The 7,000-gross-square-foot WHF will provide a 90-day storage area conforming to specific requirements set forth in 40 CFR 262.34 for storage of Resource Conservation and Recovery Act (RCRA) hazardous wastes and 40 CFR 761.65(b) for storage of Toxic Substance Control Act (TSCA) PCB wastes, as well as other hazardous materials controlled by state and federal regulations. The WHF will allow monitoring of all cold waste generated at ANL-W for radioactive contamination and presence of hazardous materials. The WHF will also provide a facility for sorting waste to recover recyclable materials offices to maintain records for the receipt and shipment of all wastes through the WHF.

The proposed WHF will have an overall size of 160 ft. long, 40 ft. wide, with a 16 ft. extension in back and 14 ft. eave height. The building will be designed to meet the requirements of the Uniform Building Code (UBC), DOE Order 6430.1A (General Design Criteria), and National Fire Protection Association Codes NFPA 101 and NFPA 30. Storage for RCRA/TSCA waste will meet the requirements set in 40 CFR 262.34 and 40 CFR 761.65(b).

1976

1. Title and Location of Project: ANL-W Waste Handling Facility, Argonne National Laboratory-West, INEL, Idaho

2a. Project No.: 97-E-600
2b. Construction Funded

8. Project Description, Justification and Scope (continued)

The WHF will provide for enclosed storage of RCRA/TSCA hazardous wastes, items and materials designated as excess, and contact-handled radioactive waste pending shipment from the ANL-W site. In addition, the facility will provide for monitoring municipal sanitary solid waste for radioactive contamination and presence of hazardous waste destined for the landfill. Outside storage space will be available for storage of scrap metal and wood, antifreeze and used oil.

Additional building space is proposed to provide storage area for surveyed excess items and radioactive wastes pending shipment. The additional space required for storing the excess items would not require equipment purchases or special considerations. The portion of the WHF designated to store radioactive materials will require a solid block shield wall to minimize radiation exposure levels in the facility.

1977

1. Title and Location of Project: ANL-W Waste Handling Facility, Argonne National Laboratory-West, INEL, Idaho

2a. Project No.: 97-E-600
2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management costs		$ 430
1. Engineering design and inspection at approximately 15 percent of construction costs, Item c (Design, Drawings, and Specifications: ($1,501,000)	$ 290	
2. Construction Management Costs	0	
3. Project management at 7 percent of construction costs (item c)	140	
b. Land and land rights		0
c. Construction costs		2,000
1. Improvements to land	260	
2. Buildings	990	
3. Other structures	0	
4. Utilities	720	
5. Special facilities	30	
d. Standard equipment		290
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 2,720
h. Contingencies at approximately 18 percent of above costs		490
i. Total line item cost (section 12, a. 1. (a)		$ 3,210
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$ 3,210

10. Method of Performance

Title I design, Title II facility design, and Title III design services will be performed by an Architect-Engineer under a negotiated fixed-price contract. The construction will be performed by a construction contractor who will be selected by competitive bids using the Title II drawings and specifications to obtain a single-fixed price construction contract. ANL-W will administer the A/E contract, the construction contract, engineering support services and construction inspection.

1978

1. Title and Location of Project: ANL-W Waste Handling Facility, Argonne National Laboratory-West, INEL, Idaho

2a. Project No.: 97-E-600
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 0	$ 0	$ 0	$ 360	$ 2,850	$ 3,210
(b) Operating Expense Funded equipment	0	0	0	0	0	
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 0	$ 0	$ 0	$ 360	$ 2,850	$ 3,210
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	50	0	0	0	0	50
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	230	0	230
(e) Other project-related costs	0	0	0	0	0	0
Total other project costs	$ 50	$ 0	$ 0	$ 230	$ 0	$ 280
Total project costs	$ 50	$ 0	$ 0	$ 590	$ 2,850	$ 3,490
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 50	$ 0	$ 0	$ 590	$ 2,850	$ 3,490

b. Related annual funding (estimated life of project--20 years)	
(1) Facility operating costs	$ 100
(2) Facility maintenance and repair costs	0
(3) Programmatic operating expenses directly related to the facility	213
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs	0
(7) Other costs	0
Total related annual funding	$ 313

1979

1. Title and Location of Project: ANL-W Waste Handling Facility, Argonne National Laboratory-West, INEL, Idaho	2a. Project No.: 97-E-600 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--No narrative required.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal Contribution--None.
   (2) Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--$50,000 Conceptual design is complete and was funded by FY 1992 operating funds.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--Funds for Environmental Assessment and permits.
      (e) Other project-related costs--None.
      (f) Non-federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--$100,000 annually. Maintenance, repair, and utilities are the major operating costs.
   (2) Facility maintenance and repair costs--None.
   (3) Programmatic operating expenses directly related to the facility--$213,000 annually. This covers the labor costs for a waste management engineer and three person labor pool.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--None.
   (5) GPP or other construction related to the programmatic effort in the facility--None.
   (6) Utility costs--None.
   (7) Other costs--None.

1980

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Bethel Valley Federal Facility Agreement Upgrade, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No.: 94-E-602
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 1st Qtr. FY 1994 a/

3b. A-E Work (Titles I & II) Duration: 15 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $20,500
Total Project Cost (TPC) -- $25,450

4a. Date Physical Construction Starts: 1st Qtr. FY 1995

4b. Date Construction Ends: 1st Qtr. FY 2000

6. Current Cost Estimate:
TEC -- $22,000 a/
TPC -- $25,510 a/

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1994	$ 3,600	- 106 b/	$ 3,494	$ 1,442
1995	7,000		7,000	2,687
1996	300		300	3,250
1997	1,106		1,106	3,150
1998	8,600		8,600	2,975
1999	1,500		1,500	7,473
2000	0		0	1,023

a/ Baseline Change Proposal in process for Headquarter's approval.
b/ Congressionally mandated rescission.

1981

1. Title and Location of Project: Bethel Valley Federal Facility Agreement Upgrade, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No. 94-E-602
2b. Construction Funded

8. Project Description, Justification and Scope

The proposed project will upgrade a portion of the existing Bethel Valley liquid low-level waste (LLW) collection and transfer (CAT) system at Oak Ridge National Laboratory (ORNL) with the best available technology in a cost effective manner, which will protect personnel, public safety and health, and the environment while meeting all applicable regulations, including the FFA, as it supports the Laboratory's research mission. Since ORNL's beginning in the early 1940's, its primary mission has been the support of the Department of Energy's (DOE) programs involving radioactive materials. This effort is expected to continue and grow during the next 50 years and beyond. The LLW system and its CAT component are essential to that effort and, if not kept in operation, will significantly affect ORNL's capabilities for successfully fulfilling that mission.

Currently, portions of the existing LLW-CAT system are still constructed of 40-year-old technology, which is rapidly deteriorating. More than 30 contaminated leak sites have been documented against the existing system, most of those occurring in the last 10-15 years of operation. The most notable incident occurred January 23, 1985, with a release of Sr-90 into the Sewage Treatment Plant. Several days later, the concentration of Sr-90 at White Oak Dam increased by a factor of 3, exceeding the DOE average monthly limit. After an intensive two-month effort to locate the source of contamination, a broken LLW pipeline was discovered at the Manipulator Repair Facility with a 7-foot-deep hole directly underneath the breakpoint. This type of accident is typical of those expected to occur at an increasing rate as the system gets older and deterioration continues. Hence, this project is urgently needed to continue the upgrades and stop the recurring leaks of low-level waste with their potential for adverse safety, health, and environmental impact.

During the 1970s and 1980s and continuing into the 1990s, the number of regulations have increased dramatically in the areas of radioactive and hazardous waste management. In late 1977/early 1978, the Clean Water Act (CWA) was issued by the federal government and the Water Quality Control Act was issued by the State of Tennessee. These acts complement each other and basically require that discharges of pollutants into public waters be eliminated. In April 1985, DOE issued Order 5480.14 requiring that its operating contracts implement the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program. This DOE order requires: (1) the identification and quantification of the presence of hazardous substances that may cause an unacceptable risk to health, safety, and environment; (2) the establishment and implementation of a plan for eliminating sources of contamination and completing the remedial actions necessary for cleanup; and (3) verifying that the actions taken have been successful. In addition, DOE Order 5480.14, addresses the Resource Conservation and Recovery Act (RCRA), and the Clean Water Acts (CWA) which also apply.

1982

1. Title and Location of Project: Bethel Valley Federal Facility Agreement Upgrade, Oak Ridge National Laboratory, Oak Ridge, Tennessee	2a. Project No. 94-E-602 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

DOE, EPA, and TDEC have developed criteria for upgrading the LLW-CAT system. These criteria are, in most respects, the same as EPA's requirements for hazardous waste storage and treatment systems defined in the RCRA. These criteria, promulgated under 40 CFR Parts 260-266 and 270 requires double containment, active leak detection, and corrosion protection of critical contact surfaces. The FFA has been negotiated among the DOE, the EPA and the TDEC and became effective January 1, 1992. It establishes firm schedules for compliance with the applicable regulations. Failure to comply with the schedule will result in a system shutdown.

The proposed project will eliminate additional sources for leaks of low-level waste with their potential for adverse safety, health, and environmental impacts. It will bring the affected facility LLW-CAT into compliance with applicable regulations and will facilitate fulfillment of the FFA. These upgrades involve the replacement of single-wall with double-wall piping and sump liners, addition of drip trays, upgraded leakage detection and control instrumentation, and the addition of a new valve pit.

The scope of the project was defined by the need to use the "best available technology" and provide service to only those critical facilities which offer significant benefits to ORNL and DOE. The chosen technology has been used at ORNL in the same application for almost 10 years with excellent results. Only those facilities that could justify a strong need for continued LLW-CAT pipeline service were included in the scope.

FY 1997 funding will be used to continue procurement and continue construction activities.

A-E work was completed in the 3rd quarter of FY 1995.

1983

1. Title and Location of Project: Bethel Valley Federal Facility Agreement Upgrade, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No. 94-E-602
2b. Construction Funded

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management costs		$ 6,205
1. Engineering design and inspection at approximately 42 percent of construction costs, Item c (Design, Drawings, and Specifications: $1,725,000)	$ 4,950	
2. Construction Management Costs	400	
3. Project management at 7 percent of construction costs (item c)	855	
b. Land and land rights		0
c. Construction costs b/		11,805
1. Improvements to land	0	
2. Buildings	200	
3. Other structures	325	
4. Utilities	925	
5. Special facilities	10,355	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		320
Subtotal		$18,330
h. Contingencies at approximately 20 percent of above costs		3,670
i. Total line item cost (section 12, a. 1. (a)		$22,000
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$22,000

1984

a/ The cost estimate is based on conceptual design completed in June 1992 at a cost of $730,000. The cost estimate was updated in March 1995 to reflect cost and schedule impacts resulting from reduced FY appropriation request due to budget constraints. The DOE Headquarters Economic Escalation Indices for Construction Projects were used as appropriate over the project cycle.

b/ Construction costs include approximately $345,000 for readiness reviews.

1. Title and Location of Project: Bethel Valley Federal Facility Agreement Upgrade, Oak Ridge National Laboratory, Oak Ridge, Tennessee	2a. Project No. 94-E-602 2b. Construction Funded

10. Method of Performance

DOE-ORO will provide overall project management.

Design will be performed under a negotiated architect-engineer contract and inspection will be performed by the operating contractor. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding administered by the construction manager.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 1,442	$ 2,687	$ 3,250	$ 3,150	$11,471	$ 22,000
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 1,442	$ 2,687	$ 3,250	$ 3,150	$11,471	$ 22,000
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	730	0	0	0	0	730
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	100	0	0	0	0	100
(e) Other project-related costs	1,222	100	309	450	599	2,680
Total other project costs	$ 2,052	$ 100	$ 309	$ 450	$ 599	$ 3,510
Total project costs	$ 3,494	$ 2,787	$ 3,559	$ 3,600	$12,070	$ 25,510
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 3,494	$ 2,787	$ 3,559	$ 3,600	$12,070	$ 25,510

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--30 years)

(1) Facility operating costs	$ 100
(2) Facility maintenance and repair costs	38
(3) Programmatic operating expenses directly related to the facility	20
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	20
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs	2
(7) Other costs	20
Total related annual funding	$ 200

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

(1) Total facility costs

(a) Line item--Design, procurement, and construction of the Bethel Valley FFA Upgrade are estimated to be $22,000,000. This includes approximately $345,000 for readiness reviews in accordance with DOE Order 5480.31.

(b) PE&D--None.

(c) Expense-funded equipment--None.

(d) Inventories--None.

(e) Non-Federal contribution--None.

(2) Other project costs

(a) R&D necessary to complete construction--None.

(b) Conceptual design--The conceptual design was completed in June 1992 at an approximate cost of $730,000. This includes preparation of a Project Safety Assessment (SA).

(c) Decontamination & decommissioning (D&D)--None.

(d) NEPA documentation costs--Costs for NEPA documentation and activities are estimated to be $100,000.

(e) Other project related costs--Costs of $15,000 for site characterization activities are included. Other project related costs of $2,665,000 include activities associated with requirements definition, project validation, readiness reviews, Project Management Plan, QA planning and other miscellaneous supporting project documents.

(f) Non-Federal contribution--None.

1. Title and Location of Project: Bethel Valley Federal Facility Agreement Upgrade, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No. 94-E-602
2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding

(1) Facility operating costs--The annual costs to operate and maintain the system is estimated at $100,000, including personnel, operational sampling and analysis, health physics, industrial hygiene and quality inspection.

(2) Facility maintenance and repair costs--The annual costs of $38,000 are for facility maintenance and repairs as required.

(3) Programmatic operating expenses directly related to the facility--The additional annual programmatic expenses of $20,000 includes the cost of personnel needed for performance tracking and reporting, and budgeting.

(4) Capital equipment not related to construction but related to the programmatic effort in the facility--Capital equipment in support of the BV FFA is estimated to cost approximately $20,000 for replacement equipment and upgrades necessary to meet changing environmental, industrial safety, and health and safety requirements.

(5) GPP or other construction related to programmatic effort--None.

(6) Utility costs--Annual costs of $2,000 are included for utilities.

(7) Other costs--Funding of $20,000 is for miscellaneous costs which are not covered above.

1987

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Rehabilitation of Waste Management Building 306, Argonne National Laboratory, (ANL), Argonne, Illinois

2a. Project No.: 91-E-600
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 3rd Qtr. FY 1990 a/

3b. A-E Work (Titles I & II) Duration: 75 months b/

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $11,274
Total Project Cost (TPC) -- $11,971

4a. Date Physical Construction Starts: 1st Qtr. FY 1991 a/

4b. Date Construction Ends: 4th Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $11,274
TPC -- $11,971

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
Prior Year	$ 2,129	+ 741 c/	$ 2,870	$ 916
1994	200	- 6 d/	194	347
1995	0		0	896
1996	787		787	980
1997	2,066		2,167	2,508
1998	4,375		4,375	4,675
1999	982		881	952

a/ Project started as a GPP and was reprogrammed to a line item project in FY 1992.
b/ Duration of Title I and II is extended for the interruption caused by administrative requirements, conversion to line item status, and coordination with line item 91-E-602.
c/ Reflects FY 1991 Reprogramming 91-R-15 (Completed 9/24/91) to effect corrective action on construction projects which have been determined to be funded from inappropriate sources.
d/ FY 1994 rescission.

1988

1. Title and Location of Project: Rehabilitation of Waste Management Building 306, Argonne National Laboratory (ANL), Argonne, Illinois

2a. Project No.: 91-E-600
2b. Construction Funded

8. Project Description, Justification and Scope

The purpose of this project is to create a facility which will conform to all waste handling regulations, support safe work conditions, increase the efficiency of waste management operations, and support the expected growth in waste management operations.

The work of this project consists of a full rehabilitation of Building 306 within the existing building footprint with the exception of a small enclosure along the north and east portion of the building and the addition of a shipping dock at the east end of the building. The project will involve all construction disciplines. The rehabilitation is planned in two phases. Phase I will address the dry low-level radioactive waste (dry LLW) processing area located at the northeast corner of the building. The north dock will be enclosed to provide needed space for dry LLW processing. The lay out of this area will be changed to allow for increased efficiency in waste management operations. Processes having to do with sorting and compaction of dry LLW will be relocated from other areas of the building to the dry LLW processing area. HVAC upgrades, fire protection upgrades, and life safety egress concerns in this area will be addressed. The emergency diesel generator will also be replaced as part of Phase I.

Phase II will address the remaining rehabilitation of Building 306. The primary areas to be addressed include the following: the office/administrative area, the liquid radwaste processing area, the processing area lockers/showers/toilets and the general dry radwaste operations area. Decontamination will be required in many areas of the building prior to both Phase I and Phase II construction. A decommissioned evaporator/concentrator formerly used for treatment of liquid wastes will be decontaminated and demolished.

Site improvement tasks planned in this project include addition of a shipping dock to the east end of the building and the expansion of the personal access and vehicular access to the building.

The original portion of Building 306 was constructed in 1950 during the first major construction program at this site (gross area 13,500 sq. ft.). In 1961, an addition was constructed more than doubling the area of the building (gross area 25,800). The facility has functioned as the basic Waste Management Building for the entire site to the present day. Minor rehabilitation has been effected as necessary to maintain operations. Shower, toilet, locker and other support facilities are now insufficient, partly due to removal of restrictions prohibiting female waste management workers. Electrical systems are fully loaded and offer little flexibility for further modification. Much of the liquid waste piping system and associated pumps require replacement. The locations of certain waste processing operations result in significant inefficiencies. Facilities are required to support additional waste processing equipment to be purchased in the next few years.

1989

1. Title and Location of Project: Rehabilitation of Waste Management Building 306, Argonne National Laboratory (ANL), Argonne, Illinois

2a. Project No.: 91-E-600
2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management costs		$ 2,426
1. Engineering design and inspection at approximately 17 percent of construction costs, Item c (Design, Drawings, and Specifications: $ 196)	$1,247	
2. Construction Management Costs	213	
3. Project management at 7 percent of construction costs (item c)	966	
b. Land and land rights		0
c. Construction costs		7,434
1. Improvements to land	0	
2. Buildings	7,434	
3. Other structures	0	
4. Utilities	0	
5. Special facilities	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 9,860
h. Contingencies at approximately 14 percent of above costs		1,414
i. Total line item cost (section 12, a. 1. (a)		$11,274
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$11,274

10. Method of Performance

The operating contractor will provide project management and oversight of all consultant and construction contractor activity. The project will be accomplished in two phases to be performed under separate design and construction contracts.

Phase I will be performed according to a design/build approach with design and construction work procured under one fixed-price contract. For Phase II, a fixed-price contract will be negotiated for facility design through quality based selection procedures. A separate fixed price, competitively bid contract will be established for Phase II construction.

ANL staff may be used to perform Safety Analysis Report work.

1990

1. Title and Location of Project: Rehabilitation of Waste Management Building 306, Argonne National Laboratory (ANL), Argonne, Illinois

2a. Project No.: 91-E-600
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 1,263	$ 896	$ 980	$ 2,508	$ 5,627	$ 11,274
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 1,263	$ 896	$ 980	$ 2,508	$ 5,627	$ 11,274
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	37	0	0	0	0	37
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	174	0	0	0	174
(e) Other project-related costs	0	0	0	60	426	486
Total other project costs	$ 0	$ 174	$ 0	$ 60	$ 426	$ 697
Total project costs	$ 1,300	$ 1,070	$ 980	$ 2,568	$ 6,053	$ 11,971
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 1,300	$ 1,070	$ 980	$ 2,568	$ 6,053	$ 11,971

b. Related annual funding (estimated life of project--25 years)	
(1) Facility operating costs	$ 280
(2) Facility maintenance and repair costs	0
(3) Programmatic operating expenses directly related to the facility	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs	0
(7) Other costs	0
Total related annual funding	$ 280

1991

1. Title and Location of Project: Rehabilitation of Waste Management Building 306, Argonne National Laboratory (ANL), Argonne, Illinois

2a. Project No.: 91-E-600
2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--Complete rehabilitation of an existing 40,000 sq.ft. waste management facility with addition of a small enclosure at the northeast corner of the building and of a shipping dock at the east end of the building. Prior to construction, in many of the building areas, decontamination will be required to achieve unrestricted occupancy. The ventilation, fire suppression, electrical, and signal systems require replacement of upgrading to present standards. Pumps and piping in the liquid radwaste storage area require replacement.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal Contribution--None.

   (2) Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--Conceptual design is complete.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--Environmental Assessment is complete. Funded in FY 1995 operating funds.
      (e) Other project related costs--None.
      (f) Non-Federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--The operating costs listed are the approximate current costs, on a square foot basis. There will be a short term (three to five years) decrease in maintenance costs due to the rehabilitation work, then a gradual return to the current cost levels. There may be a reduction in energy costs due to new equipment, improved lighting efficiency and improved enclosure features.
   (2) Facility maintenance and repair costs--None.
   (3) Programmatic operating expenses directly related to the facility--None.
   (4) Capital equipment not related to construction but related to he programmatic effort in the facility--None.
   (5) GPP or other construction related to programmatic effort--None.
   (6) Utility costs--None.
   (7) Other costs--None.

1992

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Bethel Valley Liquid Low-Level Waste Collection and Transfer System Upgrades, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No.: 88-R-830

2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 1st Quarter FY 1988

3b. A-E Work (Titles I and II) Duration: 38 months

4a. Date Physical Construction Starts: 1st Quarter FY 1990

4b. Date Construction Ends: 4th Quarter FY 1997

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $65,000
Total Project Cost (TPC) -- $71,700

6. Current Cost Estimate:
TEC -- $65,000
TPC -- $71,700

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
Previous	$ 35,000		$ 35,000	$ 31,497
1994	6,500	- 192 a/	6,308	4,826
1995	17,000	- 4,103 b/	12,897	2,880
1996	4,000		4,000	14,600
1997	2,692		2,692	3,970
1998	4,103		4,103	7,227

a/ Congressionally mandated rescission.
b/ Use of $4,103,000 prior year funds for FY 1996 uncosted offset.

1993

1. Title and Location of Project: Bethel Valley Liquid Low-Level Waste Collection and Transfer System Upgrades, Oak Ridge National Laboratory, Oak Ridge, Tennessee	2a. Project No.: 88-R-830 2b. Construction Funded

8. Project Description, Justification and Scope

The proposed project will upgrade a portion of the existing Bethel Valley liquid low-level waste (LLLW) collection and transfer (CAT) system at Oak Ridge National Laboratory (ORNL) with the best available technology in a cost effective manner which will protect personnel, public safety and health, the environment and meet all applicable regulations as it supports the laboratory's research mission. Since its beginning in the early 1940's, a primary mission of the ORNL has been the support of the Department of Energy's (DOE) programs involving radioactive materials. This effort is expected to continue and grow during the next 50 years and beyond. The LLLW system and its CAT component are essential to that effort and, if not kept in operation, will significantly affect ORNL's capabilities for successfully fulfilling that mission. The LLLW-CAT system is an extensive underground piping system which transfers low-level radioactive liquid waste from the waste generating and processing facilities to an evaporator facility for volume reduction.

Currently, the majority of the existing system is constructed of 40-year-old technology. More than 30 contaminated leak sites have been documented against the existing system, most of those occurring in the last 10-15 years. The most notable incident occurred January 23, 1985, with a release of radioactive isotopes into the Sewage Treatment Plant. Several days later, the concentration at White Oak Dam increased by a factor of 3, exceeding the DOE average monthly limit. After an intensive two-month effort to locate the source of contamination, a broken LLLW pipeline was discovered at the Manipulator Repair Facility with a 7-foot-deep hole directly underneath the breakpoint. This type of accident is typical of those expected to occur at an increasing rate as the system gets older and deterioration continues. Hence, this project is urgently needed to stop the recurring leaks of low-level waste with their potential for adverse safety, health, and environmental impact.

During the 1970's and 1980's and continuing into the 1990's, the number of regulatory requirements have increased dramatically in the areas of radioactive and hazardous waste management. In late 1977/early 1978, the Clean Water Act (CWA) was issued by the federal government and the Water Quality Control Act was issued by the state of Tennessee. These acts complement each other and basically require that discharges of pollutants into public waters be eliminated. In April 1985, DOE issued Order 5480.14 requiring that its operating contractors implement the DOE Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program. This DOE Order requires: (1) the identification and quantification of the presence of hazardous substances that may cause an unacceptable risk to health, safety, and environment; (2) the establishment and implementation of a plan for eliminating sources of contamination and completing the remedial actions necessary for cleanup; and (3) verifying that the actions taken have been successful.

1. Title and Location of Project: Bethel Valley Liquid Low-Level Waste Collection and Transfer System Upgrades, Oak Ridge National Laboratory, Oak Ridge, Tennessee	2a. Project No.: 88-R-830 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) have developed criteria for upgrading the LLLW-CAT system. These criteria are, in most respects, the same as EPA's requirements for hazardous waste storage and treatment systems defined in the Resource Conservation and Recovery Act (RCRA). These criteria were promulgated under 40 CFR Parts 260-266 and 270 and require double containment, active leak detection, and corrosion protection of critical contact surfaces. A Federal Facilities Agreement (FFA) negotiated among the DOE, the EPA, and the TDEC will establish schedules for complying with the regulations soon. Failure to comply with the schedule will result in a system shutdown, and may result in enforcement actions and penalties assessed by state and federal regulatory agencies.

The proposed project includes approximately one mile of 2-inch and 3-inch doubly contained stainless steel pipeline with approximately five stainless steel tanks of nominal 1,000-gal capacity located in underground stainless-steel-lined concrete vaults. The pipelines are equipped with an active leak detection system which utilizes pressurized nitrogen and are cathodically protected against corrosion. The tanks have provisions for flow control, pH monitoring, and temperature monitoring and will be equipped with an automatic caustic addition system for pH neutralization. Local monitoring and control stations (MCSs) will be provided and integrated with the existing Waste Operations Control Center (WOCC) to provide monitoring and control of overall CAT system operation.

The project will also provide a new central facility for receiving and discharging to the pipeline system liquid low-level radioactive waste that is transported by truck in tanks and small bottles. This Transported Waste Receiving Facility (TWRF), Building 2649, will be a single-story building (approximately 4,000 square feet) of standard construction located near the evaporator facility. The facility will have provisions for discharging the tank trucks within contained and ventilated rooms and glove boxes for discharging the small bottles of LLLW. Facility features will include diked floors, suitable piping and tankage, glove boxes, and appropriate ventilation and handling equipment to assure operator safety and environmental compliance. The TWRF includes one LLLW tank and one process waste tank which are equivalent to an MCS.

Internal piping will be upgraded and new external piping and an MCS will be provided for the Radioactive Materials Analytical Laboratory. Internal piping will be upgraded and new external piping and an MCS will be provided for the Irradiation Fuels Examination Laboratory. New external piping and internal piping utilizing a new tank will be provided for the Central Offgas Facility and other buildings as necessary. New LLW upgrade for building for research on irradiated materials to include internal double wall piping; external double wall piping; central instrumentation modification; decontamination to provide access.

1995

1. Title and Location of Project: Bethel Valley Liquid Low-Level Waste Collection and Transfer System Upgrades, Oak Ridge National Laboratory, Oak Ridge, Tennessee	2a. Project No.: 88-R-830 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

The proposed project will eliminate leaks of low-level waste with their potential for adverse safety, health, and environmental impacts. It will bring the affected facility LLLW-CAT into compliance with applicable regulations and will facilitate fulfillment of the FFA, thereby averting a system shutdown with its resultant adverse effects on DOE research programs.

The scope of the project was defined by the need to use the "best available technology" and provide service to only those critical facilities which offer significant benefits to ORNL and DOE. The chosen technology has been used at ORNL in the same application for almost 10 years with excellent results. Only those facilities that could justify a strong need for continued LLLW-CAT pipeline service were included in the scope.

FY 1997 funding will be used to continue work on Phase II including decontamination and construction activities.

As described for FY 1994 the TEC of this project has increased $30,000,000 from the original estimate. The increase resulted from reinstatement of scope, implementation of rulemaking, increased regulatory rigor, implementation of a construction manager, design delays, schedule extension (the construction end date has changed from the 4th quarter FY 1991 to the 4th quarter of FY 1997), complications during decontamination, and accounting procedure changes requiring portions of decontamination and Readiness Reviews be funded by the project. Current project planning and associated documentation reflects these changes.

As described for FY 1994 procurement of a tanker truck was deleted from the project scope due to changing needs at the ORNL. Remaining in the project scope is a truck to provide bottle transportation to the TWRF from low volume waste generators at the ORNL.

1996

1. Title and Location of Project: Bethel Valley Liquid Low-Level Waste Collection and Transfer System Upgrades, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No.: 88-R-830

2b. Construction Funded

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management costs		$ 15,830
1. Engineering design and inspection at approximately 22 percent of construction costs, Item c (Design, Drawings, and Specifications: $4,600,000)	$ 9,890	
2. Construction Management Costs	2,510	
3. Project management at 8 percent of construction costs (item c)	3,430	
b. Land and land rights		0
c. Construction costs b/		43,980
1. Improvements to land	0	
2. Buildings	0	
3. Other structures	0	
4. Utilities	0	
5. Special facilities	43,980	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		1,550
Subtotal		$ 61,360
h. Contingencies at approximately 6 percent of above costs		3,640
i. Total line item cost (section 12, a. 1. (a)		$ 65,000
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$ 65,000

a/ The estimated cost is based on current project cost estimates and the conceptual design report addendum submitted in July 1992. The DOE Headquarters Economic Escalation Indices for Construction Projects were used as appropriate over the project cycle.

b/ Construction costs include $200,000 for readiness review.

1997

1. Title and Location of Project: Bethel Valley Liquid Low-Level Waste Collection and Transfer System Upgrades, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No.: 88-R-830

2b. Construction Funded

10. Method of Performance

DOE-ORO will provide overall project management.

Design and inspection will be performed under negotiated architect-engineer contract and by the operating contractor. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding administered by the construction manager.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$36,323	$ 2,880	$14,600	$ 3,970	$ 7,227	$ 65,000
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$36,323	$ 2,880	$14,600	$ 3,970	$ 7,227	$ 65,000
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	1,450	0	0	0	0	1,450
(c) Decontamination & decommissioning (D&D)	2,100	0	0	0	0	2,100
(d) NEPA documentation costs	45	0	0	0	0	45
(e) Other project-related costs	1,605	500	500	500	0	3,105
Total other project costs	$ 5,200	$ 500	$ 500	$ 500	$ 0	$ 6,700
Total project costs	$41,523	$ 3,380	$15,100	$ 4,470	$ 7,227	$ 71,700
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$41,523	$ 3,380	$15,100	$ 4,470	$ 7,227	$ 71,700

1998

1. Title and Location of Project: Bethel Valley Liquid Low-Level Waste Collection and Transfer System Upgrades, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No.: 88-R-830

2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--30 years)	$ 300
(1) Facility operating costs	220
(2) Facility maintenance and repair costs	80
(3) Programmatic operating expenses directly related to the facility	80
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5) GPP or other construction related to the programmatic effort in the facility	40
(6) Utility costs	80
(7) Other costs	$ 800
Total related annual funding	

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

(1) Total facility costs

(a) Line item--Costs for design, procurement, and construction of the Bethel Valley Liquid Low-Level Waste (BVLLW) Collection and Transfer System Upgrade are estimated to be $65,000,000. This includes decontamination for the upgrades associated with FFA portion of the project and it also includes $200,000 for readiness review.

(b) PE&D--None.

(c) Expense-funded equipment--None.

(d) Inventories--None.

(e) Non-Federal contribution--None.

1999

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

(2) Other project costs
- (a) R&D necessary to complete construction--None.
- (b) Conceptual design--Includes $800,000 spent in FY 1987 and 1988 on preparing the design criteria and advance procurement report. The total conceptual design cost is $650,000. Conceptual design was completed in February 1986 at a cost of $600,000. The CDR addendum cost was $50,000 in FY 1992.
- (c) Decontamination & decommissioning (D&D)--Decontamination costs for Phase I were paid for using expense funds and amounted to approximately $2,100,000. Decontamination costs for Phase II work are included in the capital cost estimate.
- (d) NEPA documentation costs--The required NEPA documentation was a memorandum to file (MTF) that was prepared at a cost of about $45,000.
- (e) Other project related costs--The projected cost of $3,105,000 over the life of the project is for site characterization, preparing project support documents not covered in the above costs and expense funded program management support and coordination related to the project. The project documentation includes safety documentation, management plans, readiness reviews before capital funding is received, the value engineering study, risk assessments, and quality assurance plans.
- (f) Non-Federal contribution--None.

b. Related annual funding
- (1) Facility operating costs--The additional annual estimated costs of $300,000 to operate the Bethel Valley Liquid Low-Level Waste (BVLLLW) system includes personnel, utilities, operational sampling and analysis, health physics, industrial hygiene, and quality assurance.
- (2) Facility maintenance and repair costs--It is estimated that approximately $220,000 will be required for maintenance and repairs. This includes both labor and materials costs.
- (3) Programmatic operating expenses directly related to the facility--The additional annual programmatic expenses of $80,000 related to the BVLLLW system includes the cost of personnel needed for performance tracking and reporting, and budgeting.
- (4) Capital equipment not related to construction but related to the programmatic effort in the facility--Approximately $80,000 will be required on an annual basis to replace and upgrade equipment.
- (5) GPP or other construction related to programmatic effort--This line item project does not require any stand-alone, FFA-related GPPs in order for the project to successfully achieve its purpose.
- (6) Utility costs--The annual cost of utilities is estimated to be about $40,000.
- (7) Other costs--Approximately $80,000 will be required for miscellaneous costs which are not covered above.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
ENERGY SUPPLY RESEARCH AND DEVELOPMENT OPERATING EXPENSES
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: West Valley Demonstration Project, West Valley, New York

2a. Project No.: a/
2b. Operating Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1982
3b. A-E Work (Titles I & II) Duration: 1st Qtr. FY 1990

5. Previous--construction cost estimate: N/A
-- total project cost: N/A

4a. Date Physical Construction Starts: 2nd Qtr. FY 1984

4b. Date Phase I Ends: 3rd Qtr. FY 1998

6. Project Cost

	New York State + DOE Share	DOE Share
through Phase I:	$1,521,700	$1,366,000 a/
for Phase I:	$1,394,000 b/	$1,255,000
for Phase II:	TBD c/	

7. Financial schedule (Federal Funds): d/

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
Previous	$ 770,036 e/		$ 768,854	$ 728,334
1994	124,000	- 3,654 f/	120,346	131,400
1995	127,247	- 2,345 g/	124,723	134,680
1996	119,389	-4,000 h/	115,389	125,400
1997	123,601		123,601	123,600
1998	111,726		113,087	122,586

END PHASE I OF PROJECT. ADDITIONAL OUTYEAR FUNDS FOR PHASE II ARE NOT YET KNOWN.

2001

1. Title and location of project: West Valley Demonstration Project, West Valley, New York	2a. Project No.: a/ 2b. Operating Funded

7. Financial schedule (Federal Funds) (continued) d/

a/ Completion date is through the completion of high-level waste solidification (Phase 1), which occurs in 3rd Qtr FY 1998. The total DOE share through Phase I of $1,366,000,000 occurs in 3rd Quarter of FY 1998. Completion date and total cost for the Phase II portion of the project has not been determined.

b/ Does not include Phase II costs (e.g., EIS activities, transportation, final decontamination and decommissioning activities also excludes FSFCA costs).

c/ Phase II costs include post-solidification operating, high-level waste storage and transportation, and final decontamination and decommissioning activities. A definitive estimate for the post-solidification phase (e.g., waste storage and transportation and final decontamination and decommissioning) will be prepared after coordination with the Nuclear Regulatory Commission and the State of New York and preparation of appropriate environmental documents. Project has requested $128,150,000 through 3rd Quarter FY 1998 for scopes associated with Phase II, Federal Facilities Compliance Act, Federal/State Facility Compliance Agreement (FSFCA), and RCRA3008 (h) Administrative Order on Consent.

d/ It should be noted that this project is justified as an operating expense funded construction project. It has been reformatted only to comply with the revised DOE Order 5100.3. It is not intended to be funded as a capital line item.

e/ Reflects a reduction of $1,574,000 as a general reduction mandated by Congress in the FY 1993 Appropriation language and a reduction of $4,000,000 due to use of prior year balances per FY 1994 Appropriation Committee mark.

f/ Reflects rescission of $3,654,000 for FY 1994.

g/ Reflects net reduction of $3,873,000 of which $2,300,000 for General Reduction and Reprogramming.

h/ Reflects reduction of $4,000,000 for General Reduction.

8. Project Description, Justification and Scope

On October 1, 1980, Public Law 96-368, the West Valley Demonstration Project Act, (WVDP Act) went into effect. This Act directed the Secretary of Energy to carry out a high-level radioactive waste management demonstration project at the Western New York Nuclear Service Center (WNYNSC) located in Cattaraugus County, near West Valley, New York. The WNYNSC is owned by the State of New York and is administered by the New York State Energy Research and Development Authority (NYSERDA).

1. Title and location of project:	West Valley Demonstration Project, West Valley, New York	2a. Project No.: a/ 2b. Operating Funded

8. Project Description, Justification and Scope (continued)

The WNYNSC reprocessed nuclear fuel from 1966 to 1972. During that time, approximately 660,000 gallons of alkaline high-level waste was generated by this activity and stored in a carbon steel tank located in an underground vault. The alkaline waste is similar to that stored at the Department's Savannah River and Hanford sites in that these wastes also consist of a supernatant liquid and a sludge that has formed on the tank bottom. A smaller amount (about 12,000 gallons) of acidic Thorex waste, stored in a stainless steel tank located in a separate underground concrete vault, will also be treated. The project scope includes all activities undertaken in carrying out the solidification, including: (1) preparation of the Center's premises and facilities to accommodate the solidification project, including such decontamination of existing facilities and equipment as may be necessary or appropriate; (2) removal of the wastes from the underground storage tanks; (3) development, design, construction, and operation of systems and necessary supporting facilities for the solidification of the wastes; (4) acquisition of containers for the permanent disposal of the solidified waste; (5) temporary storage of the solidified waste followed by transportation to an appropriate Federal repository for permanent disposal; (6) decontamination and decommissioning (D&D) of the waste tanks and facilities, material and hardware used in carrying out the solidification of the wastes; and (7) disposal of low-level and transuranic wastes produced from project activities.

Solidification of the HLW in borosilicate glass to produce a durable, solid waste form for permanent disposal is currently scheduled to begin in FY 1996. This activity will result in the generation of approximately 300 glass filled stainless steel canisters to be stored at the Project until a Federal repository is available.

It should be noted that this project is justified as an operating expense funded Construction Line Item Project. Operating expense funds will be used to fund development, design, construction, site/facility operation, and decontamination and decommissioning activities associated with the project.

2003

1. Title and location of project:	West Valley Demonstration Project, West Valley, New York	2a. Project No.: a/ 2b. Operating Funded

9. Details of Cost Estimate

The costs shown are based on planned expenditures through 3rd Quarter FY 1998. These current estimates were developed based on an approved estimate, consider currently available and projected resources, and include the following types of costs associated with the West Valley project: R&D, design, construction, waste immobilization, decontamination and decommissioning of existing hot cells for project reuse, site/facility operation and maintenance, and project management. Also, included are estimates for new scopes associated with compliance with DOE orders and regulations in the safety and environmental areas. In addition, estimated costs for Phase II, EIS, RCRA 3008(h) Administrative Order on Consent, FFCA, and FSFCA through 3rd Quarter FY 1998 have also been included.

	Total Cost (in thousands)
Phase I:	
High-Level Waste Solidification	$ 442,500
Decontamination and Decommissioning	18,450
Site Operations	343,750
Project Support	189,550
Low-Level, Hazardous, and TRU Waste Management	257,200
Capital Equipment	1,200
General Plant Projects	1,500
Total DOE Cost Estimate	1,254,150
Non-DOE Cost (New York State Funding)	106,000
Total Project Cost	$ 1,360,150

1. Title and location of project:	West Valley Demonstration Project, West Valley, New York	2a. Project No.: a/ 2b. Operating Funded

9. Details of Cost Estimate (continued)

NYSERDA Services/G&A/Facility Credit	33,400
Total Project Cost Estimate (Phase I)	1,393,550
Phase II:	
Phase II (DOE) thru Phase I (3rd Qtr. FY 1998)	111,850
Phase II (NYSERDA) thru Phase I (3rd Qtr. FY 1998)	16,300
Total Phase II costs thru Phase I (3rd Qtr. FY 1998)	128,150
Total Project Cost thru Phase I (3rd Qtr. FY 1998)	$1,521,700

10. Method of Performance

(a) Schedule of Planned Activities

Activity	Start	Complete
Design, procurement and fabrication of Component Test Stand	2nd Qtr.FY 1983	4th Qtr. FY 1984
Component Test Stand operation	4th Qtr.FY 1985	1st Qtr. FY 1990
Supernatant Processing	3rd Qtr.FY 1988	2nd Qtr. FY 1991
Complete Vitrification Facility Construction	4th Qtr.FY 1985	4th Qtr. FY 1994
Vitrification facility checkout and testing	1st Qtr.FY 1994	1st Qtr. FY 1996
Vitrification of high-level waste	3rd Qtr.FY 1996	3rd Qtr. FY 1998
Post-vitrification decontamination and decommissioning	4th Qtr.FY 1998	Open

2005

1. Title and location of project: West Valley Demonstration Project, West Valley, New York

2a. Project No.: a/
2b. Operating Funded

10. Method of Performance (continued)

(b) Management and Contracting

The project is managed for the Department by an onsite project office, reporting through the Ohio Field Office, which is responsible for the day-to-day management and decision making. An operating contractor West Valley Nuclear Services Company, Inc., (a wholly owned subsidiary of Westinghouse Electric Corporation) is responsible for the technical management of the high-level waste solidification related activities, site and facility operations, and decontamination and decommissioning. Approval by the Department's Field, Project and Headquarters Officers is required on matters affecting project policies and technical, cost and schedule baselines. The State of New York through the New York State Energy Research and Development Authority provides consultation and comment on project activities to the Department as required by the West Valley Demonstration Project Act and the cooperative agreement between the Department and the Authority. The Nuclear Regulatory Commission provides the Department with informal review and consultations with respect to any potential radiological danger to public health and safety that may be presented by the project. An architect/engineering (A/E) firm (Ebasco Services, Inc.) has been selected by the operating contractor to perform miscellaneous A/E services; the Department reviewed and approved the selection process and contract terms. The architect-engineer scope of work generally includes preliminary and final design. To the extent feasible, design, procurement, construction, and inspection will be by fixed-price contract and subcontracts awarded on the basis of competitive bids. However, due to the complexity of the work, it may be necessary to utilize cost plus fixed fee contracts for portions of the work. Award fee contracts will be used when justified. Contracting will be by the Department or the operating contractor, depending on the nature and scope of work. The project is supported by the Battelle Pacific Northwest Laboratory, Richland, Washington, for development activities required to adopt waste treatment and solidification technology for the specific West Valley situation.

(c) Prior Year Achievements (FY 1995)

Construction/checkout/testing of the NOx System and the Vitrification Facility was completed. The Waste Compliance Plan and Waste Qualification Report were approved and issued. Vitrification Facility subsystem testing was completed along with systems performance tests in preparation for remote integrated non-radioactive operations.

Site operations continued including support of Plant Operations, site maintenance and upgrades, environmental compliance and documentation, training and operational safety. Environmental and analytical laboratories operated in support of ongoing programs.

Thorex was transferred to tank 8D-2. Thorex, zeolite and high-level waste sludge were prepared for vitrification. Preparation of the Draft Environmental Impact Statement continued. Site environmental monitoring, RCRA 3008(H) and FSFCA actions continued.

2006

10. Method of Performance (continued)

(d) Current Year Achievements (FY 1996)

Complete final integrated non-radioactive testing on the vitrification facility and complete operational Readiness Reviews leading to approval for radioactive vitrification operations. Vitrification of the high-level waste begins.

Site operational support continues, including support services, maintenance, safety and environmental programs. Environmental and analytical laboratories operate in support of ongoing operations and vitrification processing. The EIS public review and comment resolution is completed.

(e) Budget Year Achievements (FY 1997)

High-Level Waste vitrification production campaign will continue. Site operational support including maintenance, safety and environmental programs will continue. Environmental and Analytical Laboratories will operate in support of vitrification processing. The Phase II ROD will be issued. HLW tank and plant stabilization activities will be initiated.

11. Schedule of Project Funding and Other Related Funding Requirements

Project Budget a/	Prior b/c/d/	FY1996	FY1997	FY 1998	FY 1999	Total
1. Operating Funded TEC Construction	206,000	0	0	0	0	206,000
2. Facility Other Operating	924,400	128,989	137,351	150,000	166 700	1,507,440
3. Total WVDP	1,130,400	128,989	137,351	150,000	166,700	1,713,440
4. DOE Funds	1,014,150	115,389	123,601	135,000	150,000	1,538,140
5. NYS Funds	116,250	13,600	13,750	15,000	16,700	175,300

a/ Data is actual and proposed budget authorization.
b/ Reflects a reduction of $1,574,000 as a general reduction mandated by Congress in the FY 1993 Appropriation language and a reduction of $4,000,000 due to use of prior year balances per FY 1994 Appropriation Committee mark.
c/ Reduction of $2,300,000 for Non-Defense General Reduction.
d/ Reflects $1,753,000 of current year funds for Productivity Savings.

1. Title and location of project: West Valley Demonstration Project, West Valley, New York	2a. Project No.: n/ 2b. Operating Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

High-Level Waste Solidification

This category provides for development, design, construction, and operating activities related to immobilization and preparation of the high-level waste for permanent disposal.

(1) Development - Includes confirmatory or prototype development program, including Component Test Stand and mockups. This activity is based on adapting existing technology from the base Nuclear Energy and Defense waste management program to meet specific West Valley requirements.

(2) Design - Includes conceptual, preliminary and final design, inspection services, system(s) acceptance testing, and facility startup.

(3) Building and structures - Includes modification and construction of facilities (e.g. Component Test Stand) for waste solidification and supporting system/activities, field offices, and storage sheds.

(4) Special Equipment - Includes waste removal, transfer, solidification, and other systems necessary to carry out the waste immobilization and supernatant treatment program.

(5) Operating - Includes labor and material costs, including steel canisters, for the waste processing operations.

Decontamination and Decommissioning

This category covers the planning, engineering, equipment, and operations necessary for project D&D. It provides for the initial decontamination to prepare contaminated areas and hot cells for reuse by the project.

Site Operations

This category includes site/facility operations, training, maintenance, restoration, and upgrades (e.g., electrical and water supply system, roads, roofs, etc.) necessary to support waste solidification, decommissioning, environmental and occupational safety and monitoring, security and safeguards requirements.

2008

1. Title and location of project:	West Valley Demonstration Project, West Valley, New York	2a. Project No.: a/ 2b. Operating Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

Project Support

This category provides for technical, administrative, and overall management control of the project. Activities performed support other project elements and include items such as cost/schedule control systems, project reports, quality assurance program, public communication program, records management, analytical chemistry, radiation safety and control for project safety monitoring, drafting, and estimating.

Low-Level, Hazardous and TRU Waste Management

This category includes the Supernatant Treatment System, Cement Solidification System, Liquid Waste Treatment System, and Drum Cell System for Low-level waste handling; size reduction and TRU Decon Facility and TRU Interim Storage Facility for handling of TRU waste generated from high-level waste handling and processing and in the decontamination and decommissioning of the process building, and the continued management of hazardous and mixed waste.

Capital Equipment

This category provides equipment used in initial site takeover operations and restoration activities, such as health physics and environmental monitoring instrumentation and equipment, decontamination and decommissioning tools and equipment, manipulators and hot cells lights, and analytical chemical laboratory equipment.

2009

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE

PROGRAM MISSION

The Office of Nuclear Material and Facility Stabilization was established in July 1992 within the Office of Environmental Management (EM) to coordinate and oversee the orderly transition of contaminated installations/facilities from other program offices to EM, once these properties are determined to be surplus to their mission.

The Office of Nuclear Material and Facility Stabilization protects workers, the public, and the environment from exposure and contamination associated with radioactive and hazardous wastes and materials contained within these facilities. The majority of these surplus facilities were built for research purposes and were not designed for long-term storage of radioactive waste and materials. Many of these facilities have exceeded their design life and are in poor physical condition. Consequently, the surveillance and maintenance activities for these facilities and hazardous materials are expensive and labor intensive. To effectively deactivate the facilities, stabilize the materials, and reduce the funding requirements, an active program has been established for surplus facilities to identify, plan and accomplish projects that will properly store the materials and reduce the funding requirements. We are proposing legislation for privatization of facility deactivation, which will authorize contractor-financing of deactivation projects, with the contractor being paid from savings in maintenance cost to the government. This could greatly reduce the outyear maintenance mortgage for our facilities, which will otherwise be several billion dollars over the next five years, by enabling earlier facility deactivation than would be possible based on budgetary restrictions.

Milestones have been established for the stabilization of materials so that the most urgent risks are addressed first. Furthermore, as nuclear materials are placed in a more stable form, actions are being taken in a timely and cost-efficient manner as possible to stabilize and deactivate the contaminated surplus facilities. Examples of non-defense activities include defueling of the Fast Flux Test Facility reactor vessel at Richland; continuation of deactivating the Rover facility at Idaho; disposal of the non-process contaminated surplus buildings on the Idaho National Engineering Laboratory site; removal of spent nuclear fuel from the material Test Reactor at Idaho; and, disposal of surplus contaminated equipment in various buildings at Oak Ridge. It is envisioned that the mission of the Office of Nuclear Material and Facility Stabilization program mission can be completed in the 2005-2010 timeframe.

All maintenance and stabilization activities are conducted with full participation of involved stakeholders. The interests of stakeholder groups encompass environmental protection, individual safety and proper management of surplus facilities located close to large metropolitan areas. Their interests focus on activities with major facilities located in Idaho, Tennessee, Washington, and California.

2010

PROGRAM MISSION - NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE (Continued)

Some of the most noteworthy facilities and materials under the purview of the Office of Nuclear Material and Facility Stabilization include:

- o 3 nuclear reactors
- o 19 radioactive processing buildings
- o 260,000 gallons of radioactive liquid sodium
- o 100,000 gallons of liquid sodium
- o 17.3 tons of depleted uranium

The Spent Nuclear Fuel program (formerly within the Office of Waste Management) has been transferred to the Office of Nuclear Material and Facility Stabilization. The focus of this program is on placing all spent nuclear fuel into interim dry storage and preparing the fuel for permanent disposition.

The GOALS of the Nuclear Material and Facility Stabilization program are to:

- o Reduce risks:
  - -- by the timely deactivation of surplus, contaminated facilities.
- o Lower the mortgage cost of doing business.
- o Complete the mission of the Nuclear Material and Facility Stabilization program in FY 2005-2010.

Example of lowering the mortgage cost of doing business:

- o FY 1997 deactivation funding for the Fast Flux Test Facility is approximately $17,000,000. Continued deactivation activities at the facility will reduce the yearly surveillance and maintenance expenses for the facility from approximately $25,000,000 in FY 1997 to approximately $2,000,000 after deactivation activities are completed in FY 2002.

PERFORMANCE MEASURES:

The following performance measures are utilized by both Headquarters and field personnel to evaluate the effectiveness and efficiency of the accomplishments of the mission of the Nuclear Material and Facility Stabilization program:

- o Accomplish 100 percent of the FY 1997 nuclear material stabilization commitments and other risk reduction activities.
- o Accomplish deactivation projects within (or better than) cost and schedule baselines.
- o Reduce the total number and associated cost of surveillance and maintenance actions.
- o Accomplish 100 percent of established milestones.

PROGRAM MISSION - NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE (Continued)

FISCAL YEAR 1997 BUDGET STRUCTURE

The Office of Nuclear Material and Facility Stabilization's budget is structured in two appropriations. The first appropriation, the Defense Environmental Restoration and Waste Management, focuses on activities related to the management and stabilization of weapons related facilities. The second appropriation, Energy Supply, Research and Development, focuses on DOE activities independent of the weapons related program.

Within each appropriation, the Office of Nuclear Material and Facility Stabilization accomplishes its mission by supporting various activities to deactivate surplus, contaminated facilities. The Energy Supply, Research and Development appropriation funds activities in the following four categories:

1. Program Integration:

   Funds all activities that accomplish transition program and deactivation project planning. This category focuses on the planning, development, and generation of transition programs and deactivation project documentation and plans.

2. Surveillance and Maintenance:

   Funds all activities that maintain surplus and transferred buildings with required functions (i.e., surveillance and maintenance of fire, safety and life support systems, building support, and essential services as specified by Operational Safety Requirements). This category includes system/facility monitoring, corrective and preventive maintenance.

3. Stabilization/Deactivation Actions:

   Funds all activities that stabilize nuclear materials or that remove surplus materials, chemicals, and supplies including removal of hazardous, mixed, and radioactive wastes. These actions are undertaken to reduce the cost of surveillance and maintenance. Examples of deactivation work include de-energizing utilities, draining plumbing lines, removing fuel rods from nuclear reactors, and dismantling unsafe portions of equipment and buildings.

4. Spent Nuclear Fuel:

   Funds all activities associated with the management of DOE Spent Nuclear Fuel (SNF). These actions would include all activities that will stabilize vulnerable SNF, and store the SNF in a safe condition which is compatible with the permanent repository for an interim period of time (assumed to be 40 years). Eventually, all DOE SNF will be transferred to the permanent repository.

The FY 1997 Nuclear Material and Facility Stabilization budget reflects a scope of work utilizing prior year uncosted balances.

2012

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Dollars in thousands)

PROGRAM FUNDING PROFILE

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE

Subprogram	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Program Integration	$ 1,200	$ 2,846	$ 0	$ 2,846	$ 2,107
Surveillance and Maintenance	61,906	42,144	+1,000	43,144	42,673
Stabilization/Deactivation Actions	10,678	28,110	-712	27,398	38,542
Change in Inventories	-680	0	0	0	0
Spent Nuclear Fuel	566	0	+1,135	1,135	1,460
Subtotal, Operations and Maintenance	73,670	73,100	+1,423	74,523	84,782
Construction	4,910	0	+4,048	4,048	6,571
TOTAL	$ 78,580	$ 73,100	$ +5,471	$ 78,571	$ 91,353

a/ Transfer of deactivation activities to the Site Operations program ($-712)
Transfer of the Spent Nuclear Fuel program from the Waste Management program ($+5,183)
Transfer of the Energy Technology Engineering Center from the Nuclear Energy program ($+1,000)

Public Law Authorizations

95-91, Department of Energy Organization Act (1977)
104-46, The Energy and Water Development Appropriations Act, Fiscal Year 1996

2013

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Dollars in thousands)

PROGRAM FUNDING BY SITE

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
IDAHO OPERATIONS OFFICE					
Idaho National Engineering Laboratory (ID)	$ 5,476	$ 8,010	$ + 4,471	$ 12,481	$ 13,043
OAKLAND OPERATIONS OFFICE					
Energy Technology Engineering Center (CA) ...	0	672	+1,000	1,672	16,146
Lawrence Berkeley National Laboratory (CA) ...	0	1,216	0	1,216	0
Subtotal, OAKLAND	0	1,888	+1,000	2,888	16,146
OAK RIDGE OPERATIONS OFFICE					
Oak Ridge National Laboratory (TN)	9,668	13,913	0	13,913	14,638
RICHLAND OPERATIONS OFFICE					
Hanford Site (WA)	63,436	49,289	0	49,289	47,526
TOTAL, NUCLEAR MATERIAL AND FACILITY STABILIZATION	$ 78,580	$ 73,100	$+5,471	$ 78,571	$ 91,353

a/ Transfer of deactivation activities to the Site Operations program ($-712); transfer of the Spent Nuclear Fuel program from the Waste Management program ($+5,183); transfer of the Energy Technology Engineering Center from the Nuclear Energy program ($+1,000).

2014

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Dollars in thousands)

PROGRAM FUNDING BY FUND TYPE

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE

Field Offices	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
IDAHO OPERATIONS OFFICE					
Operating Expenses	$ 566	$ 8,010	$ +423	$ 8,433	$ 6,472
Construction	4,910	0	+4,048	4,048	6,571
Subtotal, IDAHO	5,476	8,010	+4,471	12,481	13,043
OAKLAND OPERATIONS OFFICE					
Operating Expenses	0	1,888	+1,000	2,888	16,146
OAK RIDGE OPERATIONS OFFICE					
Operating Expenses	9,668	13,913	0	13,913	14,638
RICHLAND OPERATIONS OFFICE					
Operating Expenses	63,086	49,089	0	49,089	47,309
Capital Equipment	350	200	0	200	217
Subtotal, RICHLAND	63,436	49,289	0	49,289	47,526
TOTAL, NUCLEAR MATERIAL AND FACILITY STABILIZATION	$ 78,580	$ 73,100	$ +5,471	$ 78,571	$ 91,353

a/ Transfer of deactivation activities to the Site Operations program ($-712); transfer of the Spent Nuclear Fuel program from the Waste Management program ($+5,183); transfer of the Energy Technology Engineering Center from the Nuclear Energy program ($+1,000).

2015

PROGRAM FUNDING BY FUNCTION

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
IDAHO OPERATIONS OFFICE					
Surveillance and Maintenance	$ 0	$ 4,492	$ 0	$ 4,492	$ 2,100
Stabilization/Deactivation Actions	0	3,518	-712	2,806	2,912
Spent Nuclear Fuel	5,476	0	+5,183	5,183	8,031
Subtotal, IDAHO	5,476	8,010	+4,471	12,481	13,043
OAKLAND OPERATIONS OFFICE					
Program Integration	0	1,216	0	1,216	0
Surveillance and Maintenance	0	672	+1,000	1,672	9,146
Stabilization/Deactivation Actions	0	0	0	0	7,000
Subtotal, OAKLAND	0	1,888	+1,000	2,888	16,146
OAK RIDGE OPERATIONS OFFICE					
Program Integration	400	1,025	0	1,025	1,035
Surveillance and Maintenance	5,870	8,551	0	8,551	6,030
Stabilization/Deactivation Actions	3,398	4,337	0	4,337	7,573
Subtotal, OAK RIDGE	9,668	13,913	0	13,913	14,638
RICHLAND OPERATIONS OFFICE					
Program Integration	800	605	0	605	1,072
Surveillance and Maintenance	56,036	28,429	0	28,429	25,397
Stabilization/Deactivation Actions	7,280	20,255	0	20,255	21,057
Change in Inventories	-680	0	0	0	0
Subtotal, RICHLAND	63,436	49,289	0	49,289	47,526
TOTAL, NUCLEAR MATERIAL AND FACILITY STABILIZATION	$ 78,580	$ 73,100	$ +5,471	$ 78,571	$ 91,353

a/ Transfer of the deactivation activities to the Site Operations program ($-712); transfer of the Spent Nuclear Fuel program from the Waste Management Program ($+5,183); transfer of the Energy Technology Engineering Center from the Nuclear Energy program ($+1,000).

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE
(Dollars in Thousands)

IDAHO

I. Mission Supporting Goals and Objectives

The Idaho National Engineering Laboratory (INEL), established in 1949 as the National Reactor Testing Station, is situated on more than 890 square miles of the Snake River Plain in southeastern Idaho. Over the years, 52 reactors have been constructed and operated at the INEL. There are nine primary facilities at the INEL, as well as administrative, engineering, and research laboratories in Idaho Falls, approximately 50 miles east of the site.

1. The Nuclear Material and Facility Stabilization program is responsible for surveillance and maintenance of facilities in the deactivation and Spent Nuclear Fuel management programs at the INEL.

2. The Idaho deactivation program creates and maintains an inventory of contaminated and uncontaminated surplus facilities. It also conducts deactivation projects in the surplus facilities to transition the facilities into a safe, stable, low surveillance and maintenance cost position.

3. The Spent Nuclear Fuel (SNF) program receives and stores Naval spent nuclear fuel and other DOE assigned spent nuclear fuel. Current focus of the program is on placing all spent fuel into interim dry storage and preparing the fuel for permanent disposition in a geologic repository.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Surveillance and Maintenance	$ 0	$ 4,492	$ 2,100	$ -2,392	-53
Stabilization/Deactivation Activities	0	2,806	2,912	+106	+4
Spent Nuclear Fuel	5,476	5,183	8,031	+2,848	+55
TOTAL, Idaho	$ 5,476	$ 12,481	$ 13,043	$ +562	+5

III. Performance Summary

FY 1995 Accomplishments
- o Continued ongoing project management and technical guidance for the Three Mile Island (TMI) Long-Term Storage Project.
- o Validated the canister dewatering design requirements.
- o Obtained DOE-HQ's approval on the Baseline Change Proposal to include scope to move TMI fuel to the Idaho Chemical Processing Plant.

III. Performance Summary - Idaho (Continued)

FY 1995 Accomplishments (Continued)
- o Revised the Project Management Plan.
- o Completed conceptual design for the canister dewatering system.
- o Prepared an Environmental Assessment (EA) and submitted it for public review.
- o Initiated title design for the canister dewatering system.
- o Prepared turnkey procurement package for the Interim Storage System (ISS).
- o Completed bid process and recommended award of the turnkey subcontract.
- o Completed design of the excavation and fencing package in support of the ISS subcontract (internal Lockheed Idaho Technologies Company design).

FY 1996 Accomplishments (To Date and Planned)
- o Complete formalized project baseline for the deactivation of the Advanced Reactivity Measurement Facility (ARMF)/Coupled Fast Reactivity Measurement Facility (CFRMF), and the Materials Test Reactor Canal.
- o Complete the movement of all (70) spent fuel elements, clean up and decontaminate the canal, and disposal of hazardous materials for the deactivation of the ARMF/CFRMF.
- o Continue to support project management activities including: management/technical guidance; Canister Characterization Plan development; audits; procedure development; and operations support.
- o Award the ISS facility design and construction contract to New Port News.
- o Prepare and submit a license application to the Nuclear Regulatory Commission (NRC).
- o Complete title design and begin fabrication of the canister dewatering (mechanical and electrical) system.
- o Begin fabrication of the canister dewatering system.
- o Revise the Project Management Plan and issue Baseline Change proposals to reflect the commercial approach procurement strategy for the ISS.
- o Obtain commitment from the Office of Civilian Radioactive Waste Management (OCRWM) to use their MP-187 transport cask for the movement of the TMI-2 fuel from Test Area North (TAN) to the Idaho Chemical Processing Plant (ICPP).
- o Complete design of the 1/12 scale demonstration test.
- o Complete the EA and issue the Finding of No Significant Impact (FONSI) for the ISS.
- o Determine the storage method for the Loss Of Fluid Test (LOFT) fuel and commercial fuel currently located in the TAN pool.

FY 1997 Planned Accomplishments
- o Provide required ongoing surveillance and maintenance for spent fuel at the Power Burst Facility (PBF) and Material Test Reactor Canal, and reduce the surveillance and maintenance on the Advanced Reactivity Measurement Facility/Coupled Fast Reactivity Measurement Facility $2,100
- o Complete the deactivation of the ARMF/CFRMF project and prepare documentation to transfer the facility to the Environmental Restoration program for decontamination and decommissioning. Complete the transfer of 222 (50 percent) special nuclear material items (i.e. fuel elements, scrap, etc.) from the Material Test Reactor Canal to storage at the ICPP 2,912

2018

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE (Continued)

III. Performance Summary - Idaho (Continued)

FY 1997 Planned Accomplishments (Continued)

o Continue support for the Long-Term Storage of TMI-2 Fuel project including: project management activities, canister dewatering system testing, 1/12 size vault demonstration testing, NRC licensing support, and Interim Storage System pad construction	$ 8,031
Total FY 1997, Idaho	$ 13,043

Explanation of Funding Changes FY 1996 to FY 1997:

- o A decrease of $2,392,000 in the surveillance and maintenance (S&M) category reflects deferral of the Power Burst Facility deactivation project. In FY 1996 the deactivation funding was used for a one time S&M activity.
- o The increase of $2,848,000 in the Spent Nuclear Fuel program is attributable to changed requirements for the Long-Term Storage of TMI-2 Fuel project including acquisition of an NRC license and completing construction of the project in order to meet the Governor Batt Agreement milestone.

Major Issues:

- o None

2019

OAKLAND

I. Mission Supporting Goals and Objectives

The Oakland Operations Office manages operations at the Lawrence Berkeley National Laboratory (LBNL), the Lawrence Livermore National Laboratory (LLNL), and the Energy Technology Engineering Center (ETEC).

The Department of Energy (DOE) operations are conducted in Rockwell International-owned and DOE-owned facilities on a 290-acre site. The ETEC portion of the Santa Susana Field Laboratory consists of government-owned buildings that occupy 90 acres of the 290-acre site. The Rockwell facilities include former fabrication facilities, a hot cell, a reactor test building, a storage vault, an onsite transport cask, and other radiologically contaminated support laboratories and areas. The ETEC facilities are used to test nonnuclear systems and components for use in energy, power conversion, and liquid metal development programs.

The Lawrence Livermore National Laboratory main site is approximately one-square-mile facility located on flat land in the Livermore-Amador Valley, approximately 40 miles east of San Francisco, on the eastern border of the city of Livermore. This site has an interim status Resource Conservation and Recovery Act (RCRA) Part B Permit for a treatment, storage, and disposal facility for hazardous, mixed, and low-level waste. Past operations involving the handling of storage of hazardous materials at the main site have resulted in the release and subsequent migration of contaminates into soil and groundwater. The Nuclear Material and Facility Stabilization program monitors surveillance and maintenance (S&M) activities for six sodium facilities at ETEC and initiates efforts to lower that cost.

These facilities perform a number of diverse research and development activities.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	%Change
Program Integration	$ 0	$ 1,216	$ 0	$ -1,216	-100
Surveillance and Maintenance	0	1,672	9,146	+7,474	+447
Stabilization/Deactivation Actions	0	0	7,000	+7,000	N/A
TOTAL, Oakland	$ 0	$ 2,888	$ 16,146	$+13,258	+459

2020

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE (Continued)

III. Performance Summary - Oakland (Continued)

FY 1995 Accomplishments
- o No activity.

FY 1996 Accomplishments (To Date and Planned)
- o Provide S&M activities for the six Surplus Facility Inventory Assessment (SFIA) high ranking assets at ETEC, and plan for the removal of non-radioactive contaminated sodium.
- o Ship the shielding block from Bevalac (Oakland) to the Brookhaven National Laboratory (BNL) in joint effort with Energy Research.
- o Provide surveillance and maintenance for the ETEC inactive/standby buildings.

FY 1997 Planned Accomplishments

o Conduct planned/unplanned maintenance checks for six SFIA high ranking assets and initiate bulk sodium transfer to an offsite user, and implement an S&M cost reduction plan	$ 672
o Continue to provide S&M for inactive/standby facilities, buildings, and associated units; disposition of the equipment with commercial value as well as hazardous materials to reduce S&M requirements; continue the contract termination closeout process	8,474
o Initiate removal of bulk sodium from the six high ranking facilities at ETEC; initiate removal of residue sodium in the piping and facility components from the six high ranking facilities at ETEC; initiate non-sodium hazardous waste removal activities for ETEC facilities/buildings; prepare a National Environmental Policy Act (NEPA) Environmental Assessment (EA) for activities associated with ETEC	7,000
Total FY 1997, Oakland	$ 16,146

Explanation of Funding Changes FY 1996 to FY 1997:
- o A decrease of $1,216,000 in Program Integration category reflects the completion of shipping the shielding block from Bevalac to the BNL.
- o An increase of $7,474,000 in the surveillance and maintenance category reflects the commencement of efforts to transfer bulk sodium to an offsite user.
- o An increase of $7,000,000 in stabilization/deactivation actions reflects the transfer of activities at the ETEC from the Office of Nuclear Energy.

Major Issues:
- o None

1202

OAK RIDGE

I. Mission Supporting Goals and Objectives

The Oak Ridge Operations Office manages the Oak Ridge National Laboratory (ORNL), the surplus enrichment plants at Oak Ridge, Tennessee, and the surplus high assay enrichment plant at Portsmouth, Ohio. The Oak Ridge Reservation is located 20 miles west of Knoxville, in eastern Tennessee.

The ORNL occupies several sites and covers approximately 2,900 acres in Melton and Bethel Valleys, 10 miles southwest of the city of Oak Ridge, Tennessee. The ORNL's mission is to conduct applied research and development (R&D) in support of DOE programs in fusion, fission, conservation, fossil, and other energy technologies and to perform basic research in selected areas of the physical and life sciences.

The Nuclear Material and Facility Stabilization program is responsible for placing and maintaining the isotope facilities in a safe, environmentally and economically sound condition until they are ready for decontamination and decommissioning. Many of the facilities are contaminated and require continuous monitoring to assure public protection from unplanned releases.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 400	$ 1,025	$ 1,035	$ +10	+1
Surveillance and Maintenance	5,870	8,551	6,030	-2,521	-29
Stabilization/Deactivation Actions	3,398	4,337	7,573	+3,236	+75
TOTAL, Oak Ridge	$ 9,668	$ 13,913	$ 14,638	$ +725	+5

2022

III. Performance Summary - Oak Ridge (Continued)

FY 1995 Accomplishments

- o Completed decontamination and fixation of contamination in the Storage and Service Facility (Building 3036).
- o Initiated deactivation of the Cobalt Storage Facility (Building 3029).
- o Removed tritium lights from the Krypton Enrichment Facility (Building 3026-C).
- o Deactivated six hot cells in Building 3028.

FY 1996 Accomplishments (To Date and Planned)

- o Conduct surveillance and maintenance actions in the 19 isotope facilities (contain 1,260,000 curies of radioactive materials) and 10 additional facilities which contain reactor fuel.
- o Provide water, steam, electricity and compressed air to 25 isotope facilities and high ranking facilities.
- o Continue deactivation of Buildings 3038, 3029 and 3026-C; dispose of eleven gloveboxes and deactivate one hot cell in Building 3038-E; remove two radioactive processing systems for handling tritium and krypton in Building 3033.

FY 1997 Planned Accomplishments

o Provide guidance and coordination for 19 isotope facilities currently in the Nuclear Material and Facility Stabilization program and 31 facilities transferring into the Office of Environmental Management from the Office of Nuclear Energy (NE), which include: develop planning and budget documentation and verify facility conditions for 19 former production isotope facilities; and develop post deactivation surveillance and maintenance plans for Buildings 3028, 3029, 3033, 3026-C, and 7025 ...	$1,035
o Conduct routine and unplanned maintenance checks and calibrations on approximately 2,900 pieces of mechanical equipment and instrumentation in 30 facilities including: perform weekly radiological protection surveys for 10 of the 31 facilities which contain reactor fuel, radioactive sources, and contaminated control areas; provide water, steam, electricity, and compressed air to 10 high ranking facilities and 15 isotope facilities; conduct routine and unplanned maintenance checks and calibrations on approximately 1,000 pieces of mechanical equipment and instrumentation in 17 isotope facilities; and perform weekly radiological protection surveys for 19 isotope facilities containing approximately 1,260,000 curies of radioactive materials	6,030
o Stabilization/Deactivation activities include: initiate actions to dispose of surplus contaminated equipment in Buildings 3010, 3019B, 7700, 7602; initiate plans for removal of fuel from the Tower Shielding Reactor (TSR) Facility including disposition of 55 tons of sodium and 6 tons of lithium hydride; initiate activities to package and ship 21 fuel elements in the TSR and 73 spent fuel elements in the Bulk Shielding Reactor (BSR) Facility to Savannah River Site; complete deactivation of Building 3038 gloveboxes and hoods at Building 3047 and upgrades at Building 3517; remove all waste from Building 3026-D and 3038-AHF hot cells and 3038 barricade; ship surplus material containing 108,949 curies of cesium and 1,259,583 curies of strontium to the Waste Encapsulation Storage Facility at Hanford; and complete deactivation of three isotope facilities	7,573
Total FY 1997, Oak Ridge	$ 14,638

2023

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE (Continued)

Explanation of Funding Changes FY 1996 to FY 1997 - Oak Ridge:

- The decrease in surveillance and maintenance of $2,521,000 is due to complete deactivation of three isotope facilities and further stabilization of materials associated with two reactor facilities and their ancillary structures.
- The increase in Stabilization/Deactivation Actions of $3,236,000 reflects the initiation of activities to disposition 22 tons of sodium and other hazardous materials currently located at the Tower Shielding Reactor site.

Major Issues:

- None

2024

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE
(Dollars in Thousands)

RICHLAND

I. Mission Supporting Goals and Objectives

The Richland Operations Office (RL) manages the Hanford Site, which is located on approximately 560 square miles (1,450 square kilometers) in southeastern Washington. Facilities at the Hanford site were among the first facilities constructed by the Manhattan Project.

The majority of the Richland Advanced Reactors Transition Program is comprised primarily of the Fast Flux Test Facility (FFTF) shutdown project. Additional Advanced Reactors Transition program elements include: Nuclear Energy (NE) legacy facilities; which include several non-reactor liquid metal treatment/storage facilities and a Sodium Test Facility; Building 308 deactivation, the test reactor and Isotope Production, General Atomics (TRIGA Fuel), and Building 309 transition. The primary mission of the Advanced Reactors Transition Program is to achieve a safe, environmentally compliant and cost-effective transition of the program facilities to a final shutdown configuration.

The FFTF is a 400-megawatt, sodium-cooled, fast flux test reactor that became fully operational in 1982. Due to the lack of a long-term mission, the Secretary of Energy ordered the shutdown of the facility on December 15, 1993. The FFTF transition mission is to accomplish a radiologically and industrially safe shutdown by FY 2002. Major FFTF deactivation activities include: reactor defueling (completed in FY 1995); fuel offload, washing and storage; sodium systems drain to a sodium storage facility; and support systems shutdown.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 800	$ 605	$ 1,072	$ +467	+77
Surveillance and Maintenance	56,036	28,429	25,397	-3,032	-11
Stabilization/Deactivation Actions	7,280	20,255	21,057	+802	+4
Change in Inventories	-680	0	0	0	0
TOTAL, Richland	$ 63,436	$ 49,289	$ 47,526	$ -1,763	-4

2025

III. Performance Summary - Richland (Continued)

FY 1995 Accomplishments

- o Provided required financial and program planning documents, such as Activity Data Sheets and Site Integration Planning.
- o Provided maintenance for 260,000 gallons of hazardous liquid sodium, 600 gallons of sodium potassium alloy, and 12 metric tons of spent nuclear fuel at the Fast Flux Test Facility (FFTF).
- o Completed FFTF reactor defueling.
- o Completed deactivation of 21 (of a total 100) active auxiliary support systems at FFTF.
- o Received and tested the first interim storage cask for storage of FFTF reactor fuel.
- o Commenced operational testing of FFTF fuel offload equipment.
- o Completed design of the FFTF Sodium Storage Facility.
- o Received the first TRIGA reactor fuel cask for use in shipping and storing spent fuel for Building 308.
- o Completed pumping 15,000 gallons of contaminated water from Building 309 Plutonium Recycle Test Reactor ion exchanger vault. Completed cleanout and stabilization of the ion exchanger vault including removal of 12 ion exchange columns.
- o Removed small heat transient Sodium Test Loop and shipped to LM Manufacturing per a Cooperative Research and Development Agreement.

FY 1996 Accomplishments (To Date and Planned)

- o Provide required financial and program planning documents, such as Activity Data Sheets and Site Integration Planning.
- o Continue to provide maintenance for 194,000 gallons of hazardous liquid sodium, 600 gallons of sodium potassium alloy, and 12 metric tons of spent fuel at the FFTF.
- o Complete operational testing of FFTF fuel offload equipment and begin fuel washing. Complete washing and storing the first 63 (of a total 371) FFTF fuel assemblies.
- o Transfer 66,000 gallons of sodium from the FFTF secondary cooling system to storage tanks.
- o Complete shutdown of Group 2 and 3 support systems at FFTF (completes shutdown of 35 of a total 100 support systems).
- o Complete removal of TRIGA reactor fuel to storage and shut down Building 308.
- o Cleanout and stabilize the fuel element rupture loop ion exchanger and process system in Building 309.
- o Remove prototype applications Sodium Test Loop and initiate removal of Thermal Transmit Loop.
- o Complete dismantlement of approximately 600 feet of thermal loop piping in Building 335A and initiate removal of approximately 200 feet of High-Temperature Sodium Facility test loop piping in Building 337 at the Advanced Reactors Nuclear Energy (NE) Legacy Facilities; ship sodium wetted components for reuse; and cleanup three Resource Conservation and Recovery Act (RCRA) sodium waste storage areas (Buildings 4843, 3718-M, and 105-DR)

2026

NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE (Continued)

III. Performance Summary - Richland (Continued)

FY 1997 Planned Accomplishments (Continued)	
o Provide required financial and program planning documents, such as Activity Data Sheets, Site Integration Planning, Progress Tracking Systems/Site Management System input and Multi-Year Program Plan, and submit sitewide system input	$ 1,072
o Provide surveillance and maintenance to ensures that surplus facilities at FFTF, Nuclear Energy Legacies and Building 309, which contains nuclear materials and chemical inventories such as 194,000 gallons of hazardous liquid sodium, 600 gallons of sodium potassium alloy, and 12 metric tons of spent fuel at FFTF, are maintained in a safe condition. Activities include the surveillance of safety controls; maintenance of fire, safety, and life support systems; and building support and essential services to be performed as specified by Operational Safety Requirements (OSR). This also includes system/facility monitoring, corrective and preventive maintenance, and safeguards and security.	25,180
o Procure vital equipment necessary to maintain safety and operational compliance i.e. replacing failed parts of vital offload equipment	217
o Complete the following deactivation work at Building 309: remove 24 lead bricks and coat internal surfaces in the Plutonium Recycle Test Reactor (PRTR) Fuel Element Rupture Test Facility Annex; stabilize\characterize exhaust stack, filter pit; and plan for removal of waste tanks	1,894
o Complete the following deactivation activities at FFTF: complete construction and startup of FFTF Sodium Storage Facility; initiate primary sodium drain to the FFTF Sodium Storage Facility; drain over 200,000 gallons of hazardous liquid sodium to the sodium storage facility; wash/process and transfer approximately 185 fuel assemblies to dry storage; continue auxiliary system shutdown; process two unique fuel assemblies and repackage for shipping	19,163
Total FY 1997, Richland	$ 47,526

Explanation of Funding Changes FY 1996 to FY 1997:

o The decrease in surveillance and maintenance (S&M) of $3,032,000 in FY 1997 is due to the completion of a Sodium Storage Facility construction project for the offload of liquid sodium, which enables the shutdown of related plant systems that would otherwise require S&M.

Major Issues:

o None

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NUCLEAR MATERIAL AND FACILITY STABILIZATION - NON-DEFENSE
(Obligations in thousands)

PROGRAM OBJECT CLASS SUMMARY

Direct Obligation:		FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Personnel Compensation:						
11.1	Full-time permanent	$ 0	$ 0	$ 0	$ 0	$ 0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.9	Total Personnel Compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13.0	Benefits for former personnel	0	0	0	0	0
21.0	Travel and transportation of persons	0	0	0	0	0
22.0	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Communications, utilities, and misc charges	0	0	0	0	0
24.0	Printing and reproduction	0	0	0	0	0
25.4	Operations and maintenance of facilities	75,655	75,089	76,427	75,004	84,565
25.5	Research and development contracts	0	0	0	0	0
26.0	Supplies and materials	0	0	0	0	0
31.0	Equipment	350	350	200	200	217
32.0	Land and structures	4,910	0	4,048	0	6,571
99.0	Subtotal, Direct Obligations	$80,915	$75,439	$80,675	$75,204	$91,353
	Reimbursable Program					
99.9	Total Obligations	$80,915	$75,439	$80,675	$75,204	$91,353
	Recovery of prior year obligations	-2,381	-2,381	-2,058	-2,058	0
	Unobligated balance available, start of year	0	0	-46	-46	0
	Unobligated balance available, end of year	+46	+46	0	0	0
	Budget Authority	$78,580	$73,104	$78,571	$73,100	$91,353

2028

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Dollars in thousands)

NUCLEAR MATERIAL AND FACILITY STABILIZATION
CAPITAL OPERATING EXPENSES AND CONSTRUCTION SUMMARY

Capital Operating Expenses	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
GPP	$ 0	$ 0	$ 0	$ 0	0
AIP	0	0	0	0	0
Capital Equipment	350	200	217	+17	+9
Project Related Costs					
1. CDRs	0	0	0	0	0
2. "Bridge" Costs	0	0	0	0	0

Construction Project Summary

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Comp. Approp.	FY 1996 Comp. Approp.	FY 1997 Request	Unapprop. Balance
93-E-900	Long-Term Storage of TMI-2 Fuel, Idaho National Engineering Laboratory, Idaho	25,500	9,574	4,910	4,048	6,571	397
TOTAL, PROJECT FUNDING - NON-DEFENSE		$ 25,500	$ 9,574	$ 4,910	$ 4,048	$ 6,571	$ 397

NUCLEAR MATERIAL AND FACILITY STABILIZATION
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Long-Term Storage of TMI-2 Fuel Idaho National Engineering Laboratory, Idaho	2a. Project No. 93-E-900 2b. Construction Funded	ADS# ID-6353-SF

SIGNIFICANT CHANGES

- As a result of the October 17, 1995, DOE/NAVY/State of Idaho consent order/settlement agreement on Spent Fuel and Nuclear Waste, and a decision to seek licensing of this facility through the Nuclear Regulatory Commission (NRC), the cost spending profile has been revised to reflect the beginning of construction as a result of obtaining the NRC License.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin)

NUCLEAR MATERIAL AND FACILITY STABILIZATION
ENERGY SUPPLY, RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Long-Term Storage of TMI-2 Fuel, Idaho National Engineering Laboratory, Idaho

2a. Project No. 93-E-900 ADS# ID-6353-SF
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 1st Quarter FY 1993

3b. A-E Work (Titles I and II) Duration: N/A

5. Previous Cost Estimate:
Total Estimated Cost (TEC)--$25,500
Total Project Cost (TPC)-- $30,000

4a. Date Physical Construction Starts: 1st Quarter FY 1995

4b. Date Construction Ends: 4th Quarter FY 1997

6. Current Cost Estimate:
TEC -- $25,500
TPC -- $30,000

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 2,720		$2,720	$ 253
1994	7,320	- 466 a/	6,854	982
1995	4,910		4,910	317
1996	4,048		4,048	7,000
1997	6,571		6,571	7,500
1998	397		397	9,448

a/ Reduction due to 3.0 percent rescission for Non-Defense ($216,000) and use of $250,000 prior year funds for uncosted offset.

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1. Title and Location of Project: Long-Term Storage of TMI-2 Fuel, Idaho National Engineering Laboratory, Idaho (Continued)	2a. Project No.: 93-E-900	ADS# ID-6353-SF
	2b. Construction Funded	

8. Project Description, Justification and Scope

This project provides dry storage for all reactor fuel bearing materials currently in the Test Area North (TAN) Hot Shop Pool. This will include the Three Mile Island-2 (TMI-2) core debris (packaged in stainless steel canisters), Loss-of-Fluid (LOFT) fuel modules and a small amount of DOE-owned commercial fuel. The TMI-2 core debris canisters and the LOFT and commerical fuel will be moved to an interim storage system at ICPP provided by a vendor under a design/build/turnkey procurement contract. The Long Term Storage of TMI-2 Fuel Project includes construction of a canister dewatering system and an Interim Storage System (ISS) and procurement of transport equipment.

The purpose of this project is to provide dry fuel storage capabilities for all the fuel bearing material currently stored in the TAN-607 Pool and thus reduce the current risk of submerged fuel storage. The TAN-607 Pool does not meet current DOE Orders. This project will allow the pool to be taken out of service. A commercially available and licensable dry storage system will be constructed at ICPP. A dewatering system will be installed at TAN to remove the water from the canisters prior to transport and dry storage. Transport equipment will also be provided.

Justification of need for the Long-Term Storage of TMI-2 Fuel Project is five fold. In prioritized order, this project will: (1) meet the October 17, 1995, DOE/NAVY/State of Idaho consent order/settlement agreement on spent fuel and nuclear waste; (2) significantly reduce annual storage costs, saving at least $2,000,000 per year for 30 years, for storage surveillance activities; (3) avoid potential long-term problems associated with storage in an unlined, obsolete (circa 1950) pool - no installed monitoring apparatus exists; (4) prolong canister life thus eliminating subsequent repackaging costs by removing the canisters from the lifetime-limiting water environment; and (5) allow removal of fuel materials from the pool, allowing the facility to be made available for shutdown, decontamination, and decommissioning.

2032

1. Title and Location of Project: Long-Term-Storage of TMI-2 Fuel, Idaho National Engineering Laboratory, Idaho (Continued)	2a. Project No.: 93-E-900 2b. Construction Funded	ADS# ID-6353-SF

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management costs		$ 5,300
1. Engineering design and inspection at approximately 9 percent of construction costs, Item c	$1,500	
2. Construction Management Costs	200	
3. Project management at 22 percent of construction costs (Item c)	3,600	
b. Land and land rights		0
c. Construction costs		16,437
1. Improvements to land	275	
2. Buildings	0	
3. Other structures	15,132	
4. Utilities	330	
5. Special facilities	700	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 21,737
i. Contingencies at approximately 17 percent of above costs		3,763
j. Total line item cost (Section 11.a.1.[a])		$ 25,500
k. Less: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 25,500

a/ These estimates are based on an awarded contract for the Interim Storage System and conceptual design for the dewatering system.

10. Method of Performance

The Interim Storage System will be procured via a turnkey contract. The vendor will perform design, construction, testing, and facility turnover. All other aspects of the project will be managed by the operating contractor through normal operating procedures and methods.

The dewatering system will be designed, procured, and assembled by the INEL operating contractor's personnel.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 9.j.)	$ 1,235	$ 317	$ 7,000	$ 7,500	$ 9,448	$ 25,500
(b) Plant Engineering and Design	0	0	0	0	0	0
(c) Operating Expense Funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 1,235	$ 317	$ 7,000	$ 7,500	$ 9,448	$ 25,500
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	0	0	0	0	0	0
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	130	0	0	0	0	130
(e) Other project-related costs	1,209	521	688	833	1,119	4,370
(f) Total other project costs	$ 1,339	$ 521	$ 688	833	$ 1,119	$ 4,500
(g) Total project costs	$ 2,574	$ 838	$ 7,688	$ 8,333	$10,567	$ 30,000
(h) Less: Non-federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 2,574	$ 838	$ 7,688	$ 8,333	$10,567	$ 30,000

2034

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual costs

(1) Facility operating costs	$ 950
(2) Facility maintenance and repair costs	0
(3) Programmatic operating expenses directly related to the facility	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs	0
(7) Other costs	0
Total related annual costs	$ 950

NOTE: Annual operating costs will depend on the type of storage system (which will be determined by the successful bidder) and the passive nature of operation. This estimate assumes some form of HVAC system.

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

(1) Total facility costs

(a) Line item--The TEC is based on a detailed conceptual design cost estimate validated by a team of INEL cost estimators.
(b) PE&D--None.
(c) Expense-funded equipment--None.
(d) Inventories--None.

(2) Other project costs

(a) R&D necessary to complete construction--None.
(b) Conceptual design--None.
(c) Decontamination & decommissioning (D&D)--None.
(d) NEPA documentation costs--$130,000 for the preparation and approval of the Environmental Assessment document.
(e) Other project related costs--Funds are required to support the following activities: (1) project planning, (2) construction management planning, 3) Quality Assurance/inspection planning, (4) project management for design support, construction support, testing, and startup, (5) safety analyses and reports, (6) readiness reviews for startup and operation, (7) operating tests, (8) training of operating and maintenance personnel, and (9) general technical support ($4,370,000).

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12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Related annual costs
(1) Facility operating costs--Includes operating labor costs and maintenance to transfer fuel to ICPP.
(2) Facility maintenance and repair costs--Includes spare parts and maintenance costs.
(3) Programmatic operating expenses related directly to the facility--None.
(4) Capital equipment not related to construction but related to the programmatic efforts in the facility--None.
(5) GPP or other construction related to the programmatic effort in the facility--None.
(6) Utility costs--None.
(7) Other costs--None.

SITE OPERATIONS - NON-DEFENSE

PROGRAM MISSION

The Office of Site Operations' mission is to serve as a focal point and champion in the Office of Environmental Management (EM) for the Operations Offices and field sites by providing leadership for crosscutting issues and topics raised by the field and/or EM Headquarters by serving as facilitator, ombudsman, and/or coordinator. The mission includes being knowledgeable about the state of EM business, to identify and resolve common problems, and to enhance EM operations by providing independent programmatic guidance, policy, and technical assistance. As the focal EM office for crosscutting issues, the Office develops Department-wide and site-specific policy and guidance necessary to implement pollution prevention activities. The Office also employs sound environmental, safety, and health measures in the cleanup, transition to safe shutdown, and disposition of the Mound site.

The GOALS of the Site Operations Program are to:

- o Implement policies and practices that will encourage all operations to reduce the generation and releases of wastes and pollutants.
- o Implement waste minimization/pollution prevention (WMin/PP) projects that will pay for themselves in three years or less.
- o Develop a model for integrating all Environmental Management Program activities at smaller DOE sites in order to manage and expedite the closeout and disposition of activities and facilities.

The OBJECTIVES related to these goals are to:

- o Establish for Mound an approved, integrated closeout plan for its cleanup and disposition activities so that an exit date and associated costs can be determined and continue accelerated cleanup and shutdown of the plant site.
- o Establish and maintain an incentive program that makes the waste generators accountable financially and managerially for their waste.
- o Implement projects to meet the Department's pollution prevention reduction goals.

PERFORMANCE MEASURES:

- o Number of pollution prevention projects implemented and costs saved or avoided by these projects.
- o Achieve the Department's seven pollution prevention goals.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, narrative in whole dollars)

SITE OPERATIONS - NON-DEFENSE

PROGRAM FUNDING PROFILE

Sub-program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustment 1/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Site Integration	$ 0	$ 0	$ 712	$ 712	$ 0
Mound & Pinellas Project Office	974	0	1,061	1,061	1,223
Pollution Prevention	1,155	0	2,567	2,567	1,576
SUBTOTAL, Operations and Maintenance	2,129	0	4,340	4,340	2,799
Construction	$ 0	$ 0	$ 0	$ 0	$ 0
TOTAL, Site Operations	$ 2,129	$ 0	$ 4,340	$ 4,340	$ 2,799

1) Transferred from Waste Management, Environmental Restoration, and Nuclear Material and Facility Stabilization.

Public Law Authorization:
Pub. Law 95-91, DOE Organization Act (1977)
Pub. Law 104-46, The Energy and Water Development Appropriation Act, Fiscal Year 1996

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENERGY SUPPLY RESEARCH AND DEVELOPMENT
(Tabular dollars in thousands, narrative in whole dollars)

SITE OPERATIONS - NON-DEFENSE

PROGRAM FUNDING BY SITE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
ALBUQUERQUE OPERATIONS OFFICE					
Inhalation Toxicology Research Institute (NM)	$ 21	$ 0	$ 26	$ 26	$ 40
Subtotal, ALBUQUERQUE	$ 21	$ 0	$ 26	$ 26	$ 40
CHICAGO OPERATIONS OFFICE					
Chicago Operations Office (IL)	$ 110	$ 0	$ 1,676	$ 1,676	$ 793
Subtotal, CHICAGO	$ 110	$ 0	$ 1,676	$ 1,676	$ 793
IDAHO OPERATIONS OFFICE					
Idaho Operations Office (ID)	$ 0	$ 0	$ 712	$ 712	$ 0
Subtotal, IDAHO	$ 0	$ 0	$ 712	$ 712	$ 0
OAKLAND OPERATIONS OFFICE					
Energy Technology Engineering Center (CA)	$ 206	$ 0	$ 226	$ 226	$ 182
Lawrence Berkeley Laboratory (CA)	518	0	424	424	365
Stanford Linear Accelerator Center (CA)	$ 300	$ 0	$ 215	$ 215	$ 196
Subtotal, OAKLAND	$ 1,024	$ 0	$ 865	$ 865	$ 743

PROGRAM FUNDING BY SITE - SITE OPERATIONS - NON-DEFENSE (con't)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
OHIO FIELD OFFICE					
Mound (OH)	$ 974	$ 0	$ 1,061	$ 1,061	$ 1,223
Subtotal, OHIO	$ 974	$ 0	$ 1,061	$ 1,061	$ 1,223
TOTAL, Site Operations	$ 2,129	$ 0	$ 4,340	$ 4,340	$ 2,799

MOUND AND PINELLAS PROJECT OFFICE

I. Mission Supporting Goals and Objectives

The Mound Plant site is located in Miamisburg, Ohio and was built in the late 1940's to support research and development and production activities for the Department's weapons and energy programs. It occupies 306 acres of land in southwestern Ohio. Weapons production support ended in 1994, when activities across the country were consolidated at the Kansas City Plant (KCP) in Missouri, Los Alamos, and Savannah River. Mound is currently processing tritium units for Defense Programs (DP) through CY 1997. There are potentially 406 sites where radioactive and/or hazardous chemicals may have been released. During the plant lifetime, Mound manufactured items containing plutonium-238, polonium-210, and tritium and processed large quantities of various types of explosives. Contamination of soils and ground water with radioactive and hazardous chemicals has occurred as a result of these manufacturing and processing operations. Mound has been placed on the National Priority List (NPL), and the Federal Facility Agreement (FFA) for accomplishing the remediation of Mound has been negotiated with the EPA and the State of Ohio. Activities at the Mound Plant are managed by the Miamisburg Area Office. The mission of the Mound Plant involves the transition from an active production plant to a total safe shutdown and cleanup of the facilities and soil, and sale of the property.

The Nuclear Material and Facility Stabilization program assumed management of Mound on August 1, 1995, and assigned overall programmatic responsibilities to the Mound and Pinellas Project Office, which was realigned under the Office of Site Operations in December 1995. The Mound and Pinellas Project Office assumes a leadership role to ensure that the Department of Energy (DOE) exits these sites in a safe, rapid, cost effective, and public sensitive manner. The only non-defense environmental remediation currently being conducted at Mound is the decontamination of areas within the Semi-Works Cave caused by a non-defense project relating to the recovery of various radionuclides from Cotter concentrates.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Mound/Pinellas Project Office	$ 974	$ 1,061	$ 1,223	+162	+15%
TOTAL, Mound/Pinellas Project Office	$ 974	$ 1,061	$ 1,223	+162	+15%

SITE OPERATIONS - NON-DEFENSE - MOUND AND PINELLAS PROJECT OFFICE (con't)

III. Performance Summary

FY 1995 Accomplishments:

o Initiated Semi-Works Cave areas decommissioning at Mound.

FY 1996 Accomplishments (To Date and Planned):

o Continue Semi-Works Cave areas decommissioning at Mound.

FY 1997 Planned Accomplishments:

o Continue Semi-Works Cave Areas decommissioning at Mound $1,223

Explanation of Funding Changes FY 1996 to FY 1997:

o None

Major Issues:

o None

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POLLUTION PREVENTION

I. Mission Supporting Goals and Objectives

The DOE Pollution Prevention Program mission is to reduce generation and releases of DOE multi-media wastes and pollutants by implementing cost-effective waste minimization and pollution prevention technologies, practices, and policies while conducting the Department's operations in compliance with applicable environmental requirements. The Office of Pollution Prevention is responsible for implementing the Department's Pollution Prevention mission.

The primary objective of the Department's pollution prevention program is to reduce the generation of all waste streams in order to minimize the impact of the Department's operations on the environment, reduce operational cost, and improve the energy efficiency and health and safety of its operations. Pollution Prevention is also required by various Federal laws and Executive Orders including but not limited to: Pollution Prevention Act of 1990; Resource Conservation and Recovery Act (RCRA); Emergency Planning and Community Right-to-Know Act (EPCRA); and Executive Order 12856.

The Department's Pollution Prevention program will affect all its operations including EM, DP, and Energy Research. Ten Operations Offices with 30 major sites have site-wide pollution prevention programs including Albuquerque, Oak Ridge, Savannah River, Idaho, Rocky Flats, Chicago, Oakland, Nevada, and Ohio.

In FY 1996, EM is seeking to establish aggressive DOE-wide Secretarial goals to be achieved by December 31, 1999, as follows:

- Reduce total releases and offsite transfers for treatment and disposal of Emergency Planning and Community Right-to-Know Act (EPCRA) toxic chemicals from routine operations 50 percent.
- Reduce the generation of radioactive waste from routine operations 50 percent.
- Reduce the generation of low-level mixed waste from routine operations 50 percent.
- Reduce the generation of hazardous waste from routine operations 50 percent.
- Reduce the generation of sanitary waste from routine operations 33 percent.
- Divert from recycling 33 percent of sanitary waste from all operations.
- Increase the affirmative procurement of Environmental Protection Agency (EPA) designated recycled products to 100 percent except where they are not available competitively at a reasonable price or do not meet performance standards.

Progress toward achieving the goals will be determined by using 1993 as the baseline year.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Pollution Prevention	$ 1,155	$ 2,567	$ 1,576	-991	-39%
TOTAL, Pollution Prevention	$ 1,155	$ 2,567	$ 1,576	-991	-39%

III. Performance Summary

FY 1995 Accomplishments:

- o Developed and operated site-wide pollution prevention programs for non-defense related activities at Chicago, Oakland (San Francisco), and Albuquerque.
- o Implemented pollution prevention activities that are necessary to comply with regulations, Executive Orders, and DOE requirements as outlined in the 1994 Waste Minimization/Pollution Prevention Crosscut Plan. Examples of activities include conducting assessments to identify pollution prevention opportunities, tracking and reporting pollution prevention progress, modifying procedures to ensure pollution prevention become operating practices, and conduct training.

FY 1996 Accomplishments (To Date and Planned):

- o Continue the development, refinement, and operation of the site-wide pollution prevention programs.
- o Implement high Return-on-Investment (ROI) projects that pay for themselves.
- o Reduce the generation of hazardous, low-level radioactive, and mixed waste by 10 percent from the 1993 baseline.

Performance Summary: (con't)

FY 1997 Planned Accomplishments:

- Review/refine/operate the site-wide pollution prevention programs to be consistent with the Secretarial reduction goals as stated in the DOE 1996 Pollution Prevention Program Plan. Shift emphasis to achieve the overall Departmental pollution prevention objectives of:
  - Establish Operations Office ROI program;
  - Implement incentive programs;
  - Achieve the Secretarial reduction, recycling, and procurement goals; and
  - Implement pollution prevention programs that are in compliance with requirements of regulations and Executive Orders.
  - Reduce waste by 15 percent from the 1993 baseline.

Total, FY 1997 Pollution Prevention	$1,576,000

Explanation of Funding Changes FY 1996 to FY 1997:

- Decrease of $ 991,000 is due to Chicago's effort to identify pollution prevention opportunities and will not fund new cost saving ROI projects.

Major Issues:

- None

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SITE OPERATIONS - NON-DEFENSE
(obligations in thousands)

OBJECT CLASS SUMMARY

Direct Obligation:		FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Personnel Compensation:						
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.9	Total Personnel Compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13.0	Benefits for former personnel	0	0	0	0	0
21.0	Travel and transportation of persons	0	0	0	0	0
22.0	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Communications, utilities, and misc charges	0	0	0	0	0
24.0	Printing and reproduction	0	0	0	0	0
25.1	Advisory and Assistance Services	1,155	0	2,567	0	1,576
25.4	Operation of GOCOs	974	0	1,773	0	1,223
25.5	Research and development	0	0	0	0	0
26.0	Supplies and materials	0	0	0	0	0
31.0	Equipment	0	0	0	0	0
32.0	Land and structures	0	0	0	0	0
33.0	Investments and loans	0	0	0	0	0
42.0	Insurance claims and indemnities	0	0	0	0	0
99.0	Subtotal, Direct Obligations	2,129	0	4,340	0	2,799

SITE OPERATIONS - NON-DEFENSE - OBJECT CLASS SUMMARY

Direct Obligation:	FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Reimbursable Obligations	0	0	0	0	0
99.9 Total Obligations	$ 2,129	$ 0	$ 4,340	$ 0	$ 2,799
Recovery of prior year obligations	0	0	0	0	0
Unobligated balance available, start of year	0	0	0	0	0
Unobligated balance available, end of year	0	0	0	0	0
Budget Authority	$ 2,129	$ 0	$ 4,340	$ 0	$ 2,799

Defense Environmental Restoration and Waste Management

DEPARTMENT OF ENERGY

FY 1997 CONGRESSIONAL BUDGET REQUEST

ENVIRONMENTAL MANAGEMENT

VOLUME 5

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Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Defense Environmental Restoration & Waste Management					
Environmental restoration	1,669,380	1,804,052	1,762,194	-41,858	-2.3%
Waste management	2,194,356	1,916,946	1,536,653	-380,293	-19.8%
Technology development	277,521	297,881	303,771	5,890	2.0%
Program direction	498,162	473,751	446,511	-27,240	-5.7%
Nuclear materials and facilities stabilization	943,535	915,744	903,821	-11,923	-1.3%
Policy and management	50,388	25,682	48,155	22,473	87.5%
Site operations	454,948	383,173	329,469	-53,704	-14.0%
Environmental science program	23,650	63,875	52,136	-11,739	-18.4%
Environmental management privatization			185,000	185,000	
Subtotal, Defense environmental management	6,111,940	5,881,104	5,567,710	-313,394	-5.3%
Savannah river pension refund	-40,000	-37,000	-8,000	29,000	78.4%
Use of prior year balances	-667,280	-377,709	-150,400	227,309	60.2%
Total, Defense Environmental Rest. & Waste Mgmt.	**5,404,660**	**5,466,395**	**5,409,310**	**-57,085**	**-1.0%**

PROPOSED APPROPRIATION LANGUAGE

For Department of Energy expenses, including the purchase, construction and acquisition of plant and capital equipment and other incidental expenses necessary for atomic energy defense environmental restoration and waste management activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction or expansion; and the purchase of passenger motor vehicles (not to exceed [7] 20, *of which 19* are for replacement only), [$5,557,532,000] $5,409,310,000, to remain available until expended.(*Energy and Water Development Appropriations Act, 1996.*)

EXPLANATION OF CHANGE

There are no significant changes is this language. The primary change is that of the number of vehicles from seven to twenty.

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ENVIRONMENTAL MANAGEMENT

PROGRAM MISSION

The Environmental Management (EM) program is responsible for identifying and reducing risks and managing waste at sites where the Department carried out nuclear energy or weapons research and production activities. These past efforts resulted in radioactive, hazardous, and mixed waste contamination, which requires remediation, stabilization, or some other type of action. The EM program is budgeted under three appropriation accounts: Defense Environmental Restoration and Waste Management; Energy Supply, Research and Development; and the Uranium Enrichment Decontamination and Decommissioning Fund. Under the Defense account, the EM program includes waste management functions; privatization efforts; environmental restoration activities; technology development efforts; science and risk activities; nuclear material and facility stabilization activities; site operations functions; and a variety of crosscutting initiatives, including policy and management and public participation.

The **GOALS** of the EM program are:

- Eliminate and manage the urgent risk in the system;
- Emphasize health and safety for our workers and the public;
- Establish a system that increases managerial and financial control;
- Demonstrate tangible results;
- Focus technology development efforts on identifying and overcoming obstacles to progress; and,
- Establish a stronger partnership between the Department of Energy and its stakeholders.

To help achieve these goals, the EM program has made a commitment to performance measurement and to meeting the requirements of the Government Performance and Results Act of 1993. In response to this Act and in keeping with efforts to improve management practices, the Secretary of Energy has directed the Department to expeditiously adopt performance-based budgeting. The intent of performance-based budgeting is to show a direct relationship between program resources expended and results achieved. The EM program will continue to build on these efforts and focus its resources on meeting its goals.

When the EM program was established in late 1989, it inherited a legacy with significant environmental and political challenges. The 137 Environmental Management sites in 34 States have different functions, geographies, and degrees and types of contamination. The number of sites and facilities in the EM program continues to grow as the Department shifts its focus from primarily production efforts to environmental management activities. These sites include contaminated surface water or groundwater, soil, and structures totaling over 3,300 square miles of contaminated area. No other nation, government, or private entity has attempted a cleanup program of this scope and magnitude before.

The EM program must comply with a significant number of legal requirements which result from 103 Departmental compliance agreements and a multitude of Federal, State, and local health and safety environmental statutes. Bridging the gap between requirements in existing agreements, risks associated with conditions at the various sites, and available resources will be a challenge requiring increased cost efficiency through better project

performance and cost containment. The EM program's main challenge is to develop a strategy, within existing and projected technical and financial constraints, that enables the Department to meet its commitments to the American people.

MAJOR ACTIVITIES:

- Environmental Restoration: The objectives of this program are to stabilize radioactive waste, carry out remediation activities, or perform decontamination and decommissioning at contaminated DOE and legislatively-authorized non-government facilities and sites; to conduct assessments/characterization of DOE sites to determine if there is the potential for radioactive and hazardous waste releases; and to reduce and remove the potential risks to the environment and to human health and safety resulting from past defense-related Departmental activities.

- Waste Management: These activities are focused on safely, effectively, and efficiently managing the minimization, characterization, transportation, treatment, storage, and disposal of radioactive, hazardous, mixed, and sanitary wastes generated by past and ongoing operations at DOE facilities. These fundamental functions are necessary to safely and effectively manage waste which has resulted from the Department's defense-related nuclear programs, and to prepare for new waste resulting from Environmental Restoration activities.

- Privatization: Provides funding to privatize a tank waste remediation system at the Hanford Site in Washington. The funds are budgeted to allow the Department to reimburse contractors in the event the Government incurs liabilities for termination of privatization contracts..

- Technology Development: This program is a comprehensive applied research, development, demonstration, testing, and evaluation initiative to support environmental management activities through application of new technologies that increase overall efficiency and effectiveness while significantly reducing future costs. The objective of the program is to develop high-payoff technologies that can be applied to manage DOE-generated waste and to clean up the inventory of DOE-contaminated sites faster, safer, and cheaper than current environmental cleanup technologies.

- Environmental Science Program: The need to build a stronger scientific basis for Environmental Management program efforts has been established in a number of recent studies and reports. The Galvin Commission cited the most important reason behind the slow pace of assessment and cleanup of DOE waste sites as being the low quality of science and technology that is being applied in the field. Further, the Galvin Commission cited the need for long-term, basic research in disciplines related to environmental cleanup and adopting a science-based approach that includes supporting development of technologies and expertise. In response to the Galvin Commission Report, as well as other recent recommendations, the Office of Environmental Management (EM) has established an Environmental Science Program.

- Nuclear Material and Facility Stabilization: Coordinates and oversees the orderly transfer of surplus contaminated installations, facilities, and materials to EM, and plays a significant role in developing and implementing the policy and procedures for acceptance and disposition of these facilities. This program focuses on deactivation activities in a cost-effective and environmentally-sound manner to substantially decrease outyear surveillance and maintenance mortgages associated with currently contaminated facilities.

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PROGRAM MISSION, ENVIRONMENTAL MANAGEMENT - DEFENSE (continued)

MAJOR ACTIVITIES: (continued)

- Site Operations: Serves as the focal point and champion for crosscutting activities and responsibilities within the EM program, including serving as the advocate for the field at Headquarters. Provides policy direction for landlord planning and budgeting including reducing site infrastructure costs and managing workforce restructuring. This activity also includes Transportation and Pollution Prevention programs that provide for responsible DOE-wide transportation, packaging, and transportation emergency management and planning, coordinating and implementing a DOE-wide Pollution Prevention program.

- Policy and Management: Provides for crosscutting activities, such as educational development (which support the overall EM mission) and public accountability and strategic planning efforts.

- Program Direction: Provides salaries, benefits, travel, and contractual support for the Federal workforce responsible for the overall direction and administrative support of the Environmental Management program

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(dollars in thousands)

PROGRAM FUNDING PROFILE

Environmental Management

Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Corrective Activities	$0	$3,406	($3,406) a/	$0	$0
Environmental Restoration	$1,669,380	$1,635,973	$168,079 b/	$1,804,052	$1,762,194
Waste Management	$2,194,356	$2,470,598	($553,652) c/	$1,916,946	$1,536,653
Technology Development	$277,521	$440,510	($142,629) d/	$297,881	$303,771
Environmental Science Program	$23,650	$0	$63,875 e/	$63,875	$52,136
Transportation Management	$0	$13,158	($13,158) f/	$0	$0
Nuclear Material and Facility Stabilization	$943,535	$1,561,854	($646,110) g/	$915,744	$903,821
Site Operations	$454,948	$0	$383,173	$383,173	$329,469
Compliance and Program Coordination	$0	$46,251	($46,251) h/	$0	$0
Analysis, Education and Risk Management	$0	$90,022	($90,022) i/	$0	$0
Policy and Management	$50,388	$0	$25,682	$25,682	$48,155
Program Direction	$498,162	$0	$473,751	$473,751	$446,511
Privatization	$0	$0	$0	$0	$185,000
Subtotal EM	$6,111,940	$6,261,772	($380,668)	$5,881,104	$5,567,710
Use of Prior Year Balances (Offset)	(667,280)	(667,240)	289,531	(377,709)	(150,400)
Savannah River Pension Refund (Offset)	(40,000)	(37,000)	0	(37,000)	(8,000)
TOTAL EM DEFENSE	*$5,404,660*	*$5,557,532*	*($91,137)*	*$5,466,395*	*$5,409,310*

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(dollars in thousands)

PROGRAM FUNDING PROFILE

Environmental Management

Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
FTEs					
Headquarters	741	834	(158)	676	618
Field Offices	2,478	3,112	(530)	2,582	2,510
Total FTEs	3,219	3,946	(688)	3,258	3,128

Authorization:
Public Law 104-46

FOOTNOTES

a/ Reflects -$3,406K taken as a new B/A reduction for use of prior year balances
b/ Includes -$179,703K taken as a new B/A reduction for use of prior year balances, as well as other comparability adjustments.
c/ Includes -$89,421K taken as a new B/A reduction for use of prior year balances, as well as other comparability adjustments.
d/ Includes -$38,016K taken as a new B/A reduction for use of prior year balances, as well as other comparability adjustments.
e/ Reflects comparability adjustments, including the $50 million congressional add-on
f/ Includes -$608K taken as a new B/A reduction for use of prior year balances, as well as other comparability adjustments
g/ Includes -$50,821K taken as a new B/A reduction for use of prior year balances, as well as other comparability adjustments
h/ Includes -3,212K taken as a new B/A reduction for use of prior year balances, as well as other comparability adjustments.
i/ Includes -$9,124K taken as a new B/A reduction for use of prior year balances, as well as other comparability adjustments.

ENVIRONMENTAL RESTORATION

PROGRAM MISSION

The mission of the Environmental Restoration (ER) program is to protect human health and the environment from risks posed by inactive and surplus Department of Energy (DOE) facilities and contaminated areas, by remediating, decontaminating and dismantling (D&D) sites, facilities and contaminated areas in the most cost-efficient and responsible manner possible in order to provide for future beneficial use. Program responsibilities include interim/remedial actions, D&D, compliance oversight, surveillance and maintenance (S&M), landlord functions and a prudent amount of program management and technical support activities.

This budget request includes funds to carry out activities that must be undertaken immediately to minimize or prevent significant risk to workers, the public or the environment; activities required by current Federal, State, and local regulatory agreements (in place or in negotiation); and support of other legal requirements, and DOE Orders.

The ER program currently manages, in the EM Defense, EM Non-Defense, and Uranium Enrichment Decontamination and Decommissioning Fund appropriation accounts, over 600 Comprehensive Environmental Response, Compensation and Reliability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) projects, including 320 projects associated with sites on the Environmental Protection Agency's (EPA) National Priorities List (NPL), 46 Formerly Utilized Sites Remedial Actions Program (FUSRAP) sites and 24 Uranium Mill Tailing Remedial Action Project (UMTRAP) sites, and more than 50 other projects. In total, the ER program is responsible for the remediation and management of 130 sites in 33 states and territories. This budget area addresses defense related areas of the total program discussed above. This Program Mission statement applies to the entire ER program, while specific Defense efforts are addressed in the Program Performance Summary which leads off the individual descriptions of site activities being carried out across the country.

The ER program faces the following challenges:

- Addressing and minimizing urgent and near-term risk to workers, the public and the environment.
- Maintaining a safe, productive, results oriented program.
- Effectively prioritizing and sequencing work covered by Federal and State agreements to incorporate relative risk.
- Demonstrating substantial progress to stakeholders/taxpayers.
- Maintaining the momentum of the program given the constrained budgetary climate facing all Government programs.

PROGRAM MISSION - ENVIRONMENTAL RESTORATION - DEFENSE (Continued)

To meet these challenges and fulfill its mission, the ER program has established eight goals. They are listed as follows:

(1) Eliminate, reduce, or contain off-site contamination that may pose an adverse risk to the public and/or environment.
(2) Prevent migration of contaminants through timely identification, reporting, assessment, application of best technologies, and safe storage.
(3) Identify, decontaminate and/or control all sites and facilities formerly used by DOE and its contractors.
(4) Eliminate, reduce, or contain on-site contamination, that in future land use, may pose an adverse risk to the public and/or environment.
(5) Responsibly and cost effectively invest in activities, such as site safety, security, and utilities required to maintain the infrastructure to support the ER mission.
(6) Expeditiously cleanup and release facilities and land for public beneficial use.
(7) Make prudent business decisions, such as, funding activities that support and enhance the effective and efficient achievement of the ER mission.
(8) Increase efforts to identify sources, nature and extent of contamination to allow more accurate determination of relative risk, scope and cost of projects and establish data needs/objectives before characterization to increase the cost effectiveness and efficiency of characterization efforts.

The broad strategy of the ER program is to accelerate remediation completions at small sites, address the highest risks first at large sites, and complete decommissioning. Hence, the ER program has organized its sites and facilities into five categories, based upon site and facility similarities, to implement this strategy. These five categories are: UMTRAP and FUSRAP, Other Small Sites, Large Site Decommissioning, and Large Site Remedial Actions. The organization into these five categories allows for comparability of like sites and facilities, refinement of program focus and direction, and development of remediation strategies. Remediation efforts at ER sites and facilities, within each category are prioritized and sequenced based upon the eight goals discussed above. The definition and objectives of these categories, with the exception of UMTRAP and FUSRAP, which are funded and described under the Non-Defense appropriation account, are discussed below.

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Other Small Sites Category

The Other Small Sites category includes those sites not included in FUSRAP or UMTRAP and have an estimate to complete of $150,000,000 or less. Completion of these sites best demonstrates tangible progress in ER to stakeholders, and site completions reduces total program costs by eliminating fixed costs. These sites also have relatively short project durations, small lifecycle costs and are well defined.

The objectives of this category, which includes both defense and non-defense efforts, are to reduce relative risk and demonstrate progress by completion of 25 sites (about 21 percent of total sites) from FY 1995 to FY 2000.

Large Site Decommissioning Category

This category includes all activities in the D&D program which are not included in the Other small sites category. D&D activities are typically lower priority, but hold the largest potential for reducing fixed infrastructure costs and, therefore, long-term mortgage.

The objectives of this category are to reduce long-term mortgage, address high risks, and maintain cost-effective funding level.

Large Site Remedial Actions Category

This category includes all activities in the Remedial Action (RA) program that are not included in any of the above categories. It is the largest segment of environmental restoration responsibility and includes sites with widely varied risk potential and possible large volumes of waste. These activities typically involve large projects driven by legal statutes and agreements.

The objectives of this category are to sequence work based on relevant attributes and maintain or reduce the current risk state at each site.

In response to the Department's commitment to improve management practices and to adopt performance based budgeting, the ER program tracks performance measures in four areas: 1) completed characterization/assessments; 2) completed interim and removal actions and expedited response actions; 3) completed remedial actions; and 4) completed final D&D projects. Characterization/Assessments are denoted by a completed key assessment document such as a Record of Decision (ROD), Corrective Measure Study (CMS), Closure Plan, D&D Plan, Proposed Plan, National Environmental Policy Act (NEPA) document, or No Action Decision. Interim and removal actions are any actions resulting in physical cleanup progress, reduction of exposure or contaminants or containment of a source term or any action to restrict access to contaminants. Final remedial actions include RCRA closures, RCRA final corrective measures, CERCLA final remedial actions and completed underground tank programs. D&D final actions are completed when D&D objectives have been met and a report has been submitted for approval. In addition, the program tracks the status of on-going projects in the four performance areas.

The ER program has aggressively pursued productivity savings and cost efficiency initiatives, with the objective to administer a program which delivers the "most bang for the buck." In particular, major efforts have been underway to increase the cost effectiveness and efficiency of characterization/assessment activities. In addition, much focus has been placed on the effective management of ER uncosted carryover balances to both reduce and optimize these balances using sound management practices.

To provide maximum flexibility in addressing remediation efforts, all activities are budgeted under operating expenses and include capital equipment-type and construction-type activities. This is consistent with the manner in which ER activities were budgeted and approved by Congress in previous years. General crosscutting support efforts required for effective management and control of ER activities are also included in this budget.

Tables (OV-1 through OV-4) follow which provide specific information relating to program distribution by State, performance measures, assessment versus cleanup trend and uncosted carryover trends for the ER program. These tables are presented from a "National" Environmental Restoration perspective. That is, they combine and display data for all three appropriation accounts for the purpose of demonstrating how the entire ER program fits together. Defense-specific tables can be found following the Program Performance Summary introductory paragraph for this section of the budget request.

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Table OV-1
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

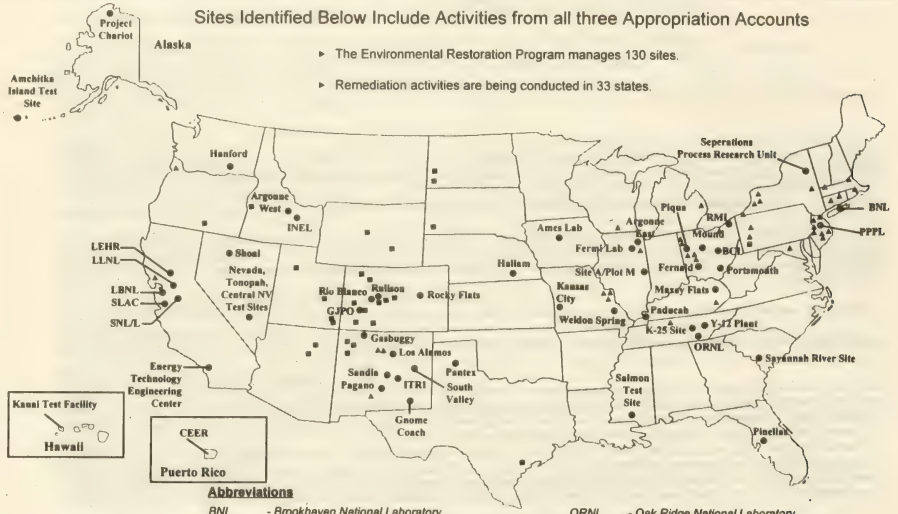
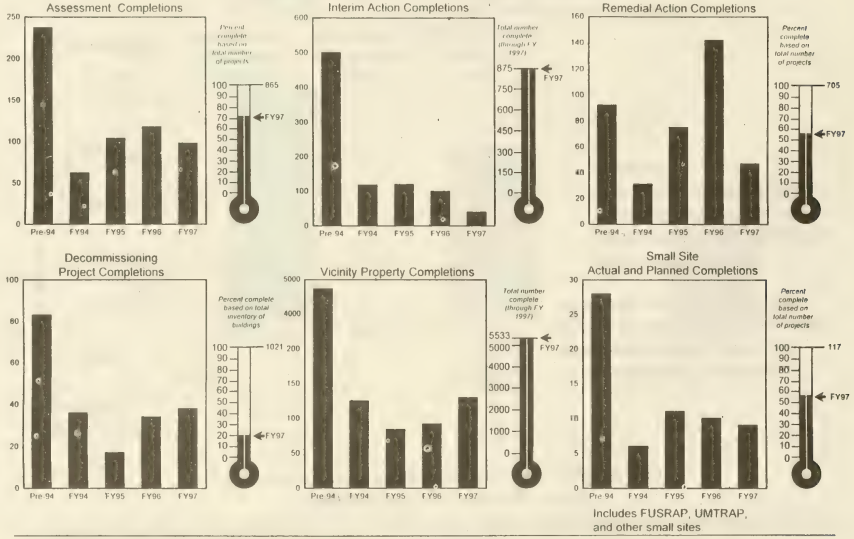


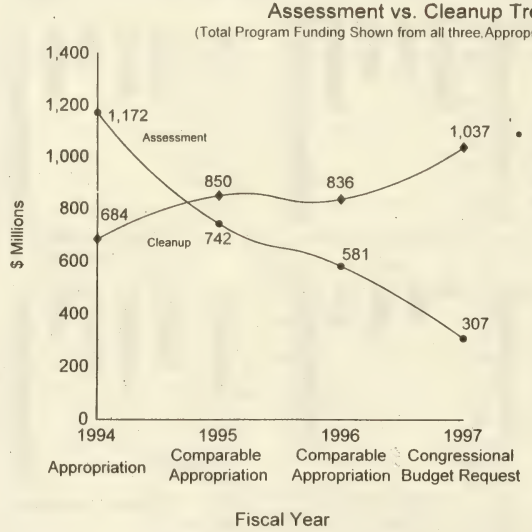
Table OV-2
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

(Includes Activities Supported from all three Appropriation Accounts)



Includes FUSRAP, UMTRAP, and other small sites

Table OV-3
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST



- Environmental Restoration is completing assessment and characterization activities more efficiently and cost-effectively
  - Efficiencies in the assessment phase expedite remediation activities and yield additional funds for cleanup.

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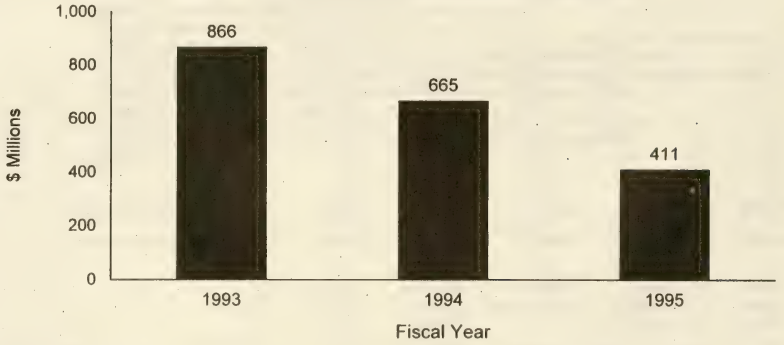
Table OV-4

ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

Ending Uncosted Balances Trend

(Reflects Total ER Funding from all three Appropriation Accounts)



Percent uncosted*	32%	22%	15%

*Based on total available to cost

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Dollars in Thousands)

ENVIRONMENTAL RESTORATION

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comparable Adjustments	FY 1996 Adjusted Comp	FY 1997 Budget Request
Facilities and Sites	$1,669,380	$1,635,973	$168,079	$1,804,052	$1,762,194
Total, Environmental Restoration	$1,669,380	$1,635,973	$168,079 a/	$1,804,052	$1,762,194

a/ Explanation of Changes:

Transfer of $-61,983k for program direction from the field to the new Program Direction Performance Summary.
Transfer of $-12,132k for program direction from Headquarters to the new Program Direction Performance Summary.
Transfer of $-7,242k for support services from the field to the new Program Direction Performance Summary.
Transfer of $-11,314k for support services from Headquarters to the new Program Direction Performance Summary.
Transfer of $-3,000k for the Hazwoper Worker Training program activities from Headquarters to the new Site Operations Performance Summary.
Transfer of $-400k for the Dose Reconstruction Project from Headquarters to the Office of Environmental, Health and Safety.
Transfer of $-958k for the Technical leadership Development program from Headquarters to the new Program Direction Performance Summary.
Transfer of $-41,600k for the Mound Site to the new Site Operations Performance Summary.
Transfer of $-5,912k for the Pinellas Site to the new Site Operations Performance Summary.
Receipt of $+17,453k for C,P,R Reactor activities at Savannah River from Site Stabilization Performance Summary.
Receipt of $+474,870k for the Rocky Flats site activities from Site Stabilization and Waste Operations Performace Summaries.
Reflects $-179,703k taken as new BA reduction for use as prior year balance offset (various sites).

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

ENVIRONMENTAL RESTORATION

PROGRAM FUNDING BY SITE

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comparable Adjustments	FY 1996 Adjusted Comp	FY 1997 Budget Request	$ Change	% Change
ALBUQUERQUE OPERATIONS OFFICE							
Albuquerque Operations Office	$3,328	$16,065	($12,782)	$3,283	$2,514	($769)	-23%
Kansas City Plant	1,498	8,144	385	8,529	5,256	(3,273)	-38%
Los Alamos National Laboratory	83,385	65,088	(5,667)	59,421	48,484	(10,937)	-18%
Pantex Plant	20,377	14,553	(1,721)	12,832	9,075	(3,757)	-29%
Pinellas Plant	0	5,441	(5,441)	0	0	0	0%
Sandia National Laboratory (CA)	2,780	2,737	64	2,801	2,578	(223)	-8%
Sandia National Laboratory (NM)	28,087	29,554	(4,336)	25,218	14,956	(10,262)	-41%
Subtotal, Albuquerque	$139,455	$141,582	($29,498)	$112,084	$82,863	($29,221)	-26%
CHICAGO OPERATIONS OFFICE							
Ames Laboratory	$696	$345	($95)	$250	$200	($50)	-20%
Argonne National Laboratory (East)	0	1,800	(737)	1,063	0	(1,063)	-100%
Chicago Operations Office	2,224	4,300	(4,130)	170	903	733	431%
Subtotal Chicago	$2,920	$6,445	($4,962)	$1,483	$1,103	($380)	-26%
IDAHO OPERATIONS OFFICE							
Idaho National Engineering Lab	$105,009	$88,101	$5,864	$93,965	$109,259	$15,294	16%
Subtotal Idaho	$105,009	$88,101	$5,864	$93,965	$109,259	$15,294	16%
NEVADA OPERATIONS OFFICE							
Nevada Operations Office	$34,543	$52,290	($4,399)	$47,891	$53,192	$5,301	11%

PROGRAM FUNDING BY SITE; ENVIRONMENTAL RESTORATION -- DEFENSE (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comparable Adjustments	FY 1996 Adjusted Comp	FY 1997 Budget Request	$ Change	% Change
OAKLAND OPERATIONS OFFICE							
Energy Technology Engineering Center	$700	$3,512	($12)	$3,500	$1,000	($2,500)	-71%
Lawrence Livermore National Laboratory	24,840	25,670	(2,453)	23,217	22,512	(705)	-3%
Oakland Operations Office	497	5,205	(4,830)	375	569	194	52%
Subtotal, Oakland	$26,037	$34,387	($7,295)	$27,092	$24,081	($3,011)	-11%
OAK RIDGE OPERATIONS OFFICE							
K-25 Site	$15,726	$12,929	$1,159	$14,088	$4,243	($9,845)	-70%
Oak Ridge Associated Universities	627	0	11	11	0	(11)	-100%
Oak Ridge National Laboratory	19,593	26,969	(1,485)	25,484	28,488	3,004	12%
Oak Ridge Operations Office	9,082	28,697	(15,755)	12,942	10,443	(2,499)	-19%
Oak Ridge Reservation	7,180	8,531	(1,668)	6,863	9,272	2,409	35%
Y-12 Plant	29,161	36,972	(9,971)	27,001	24,042	(2,959)	-11%
Subtotal, Oak Ridge	$81,369	$114,098	($27,709)	$86,389	$76,488	($9,901)	-11%
OHIO FIELD OFFICE							
Battelle Columbus Laboratories	$8,215	$11,003	($2,811)	$8,192	$482	($7,710)	-94%
Fernald Environmental Management Project	229,550	288,527	(31,246)	257,281	261,800	4,519	2%
Mound Plant	0	47,176	(47,176)	0	0	0	0%
Ohio Field Office	0	14,794	(14,794)	0	4,609	4,609	0%
Reactive Metals Inc.	5,350	11,185	(1,853)	9,332	20,284	10,952	117%
Subtotal, Ohio	$243,115	$372,685	($97,880)	$274,805	$287,175	$12,370	5%
RICHLAND OPERATIONS OFFICE							
Richland Operations Office	$177,081	$173,979	($16,546)	$157,433	$130,799	($26,634)	-17%
ROCKY FLATS OFFICE							
Rocky Flats Environmental Restoration	$116,688	$152,064	($94,070)	$57,994	$63,440	$5,446	9%
Rocky Flats Waste Operations	110,814	0	74,289	74,289	100,321	26,032	35%
Rocky Flats Site Stabilization	339,079	0	400,581	400,581	340,561	(60,020)	-15%
Subtotal, Rocky Flats	$566,581	$152,064	$380,800	$532,864	$504,322	($28,542)	-5%

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PROGRAM FUNDING BY SITE, ENVIRONMENTAL RESTORATION -- DEFENSE (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comparable Adjustments	FY 1996 Adjusted Comp	FY 1997 Budget Request	$ Change	% Change
SAVANNAH RIVER OPERATIONS OFFICE							
Savannah River Site	$110,169	$99,373	$445	$99,818	$107,457	$7,639	8%
Subtotal, Savannah River	$110,169	$99,373	$445	$99,818	$107,457	$7,639	8%
HEADQUARTERS							
Headquarters	$183,101	$400,969	($30,741)	$370,228	$385,455	$15,227	4%
Subtotal, Headquarters	$183,101	$400,969	($30,741)	$370,228	$385,455	$15,227	4%
TOTAL, ENVIRONMENTAL RESTORATION	$1,669,380	$1,635,973	$168,079 a/	$1,804,052	$1,762,194	($41,858)	-2%

a/ Includes - $179,703k taken as a new BA reduction for use of prior year balances.

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ACAP	Atomic City Auto Parts
AIP	Agreement-In-Principle
ANL	Argonne National Laboratory
ARA	Auxiliary Reactor Area
BCL	Battelle Columbus Laboratories
BORAX	Boiling Water Reactor Experiment
CAMU	Corrective Action Management Unit
CAPCA	Closure and Post-Closure Activities
CERCLA	Comprehensive Environmental Response, Compensation and
	CFACentral Facilities Area
CMS	Corrective Measure Study
CO	Consent Order
D&D	Decontamination and Decommissioning
DE	Drum Equivalent
DOE	Department of Energy
EBR	Experimental Breeder Reactor
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ER	Environmental Restoration
ERDF	Environmental Restoration Disposal Facility
ETEC	Energy Technology Engineering Center
ETR	Experimental Test Reactor
FEMP	Fernald Environmental Management Project (formerly the Feed
	FFAFederal Facility Agreement
FS	Feasibility Study
FTEs	Full-Time Equivalents
FUSRAP	Formerly Utilized Sites Remedial Action Program
GSA	General Services Area
HE	High Explosives
IHSS	Individual Hazardous Substance Sites
IM	Interim Measure
INEL	Idaho National Engineering Laboratory
IVC	Independent Verification Certification
LANL	Los Alamos National Laboratory
LEFPC	Lower East Fork Poplar Creek Liability Act
LLNL	Lawrence Livermore National Laboratory
LLW	Low-Level Waste Materials Production Center)
MSA	Major System Acquisition
MTR	Materials Test Reactor
NEPA	National Environmental Policy6 Act
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NTS	Nevada Test Site
ORNL	Oak Ridge National Laboratory
OU	Operable Unit
PBF	Power Burst Facility
PCB	Polychlorinated Biphenyls
PRP	Potential Responsible Party
RA	Remedial Action
RAD	Radioactive
RARA	Radiation Area Remedial Action
RCRA	Resource Conservation & Recovery Act
RD	Remedial Design
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RMI	Reactive Metals, Inc.
RMIDP	RMI Decommissioning Project
RMPE	Reduction of Mercury in Plant Effluent
ROD	Record of Decision
RWMC	Radioactive Waste Management Complex
S&M	Surveillance and Maintenance
SAR	Safety Analysis Report
SM	Special Metallurgical
SNL/NM	Sandia National Laboratory/New Mexico
SNL/CA	Sandia National Laboratory/California
SRL	Savannah River Laboratory
SRS	Savannah River Site
SSFL	Santa Susana Field Laboratory
SWMU	Solid Waste Management Unit
TAN	Test Area North
TPA	Tri-Party Agreement
TRA	Test Reactor Area
TRU	Transuranic
TSF	Technical Support Facilities
UMTRAP	Uranium Mill Tailings Remedial Action Project
UST	Underground Storage Tank
WAG	Waste Area Group

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

ENVIRONMENTAL RESTORATION

PROGRAM PERFORMANCE SUMMARY

The Environmental Restoration Defense Program Performance Summary includes remedial action (RA) activities, decontamination and dismantlement (D&D) efforts, surveillance and maintenance (S&M), landlord, compliance oversight activities, and a prudent amount of program management and technical support activities necessary to maintain the effective management of overall program efforts. All Operations/Field Office environmental restoration activities have been designated either a Major Systems Acquisition (MSA) or a Major Project (MP) by DOE and are administered in accordance with Departmental requirements for these major project designations. In addition, beginning with the FY 1997 Congressional Request, ER will be budgeting for the Rocky Flats Site, this will include Waste Management and Site Stabilization activities. For additional details on schedules and other site-specific information, please refer to the various Operating Expense Site Activity Description Sheets included with this submission.

Tables follow (D-1 through D-3) which provide specific information relating to overall fiscal year funding, distribution of funding by category of effort, and budget trends by category.

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Table D-1
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

Defense
($ in Millions)

Table D-2
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

Distribution of Funding - Defense

($ in thousands)

	FY 1995	FY 1996	FY 1997	% Change FY1996-FY1997
Remedial Actions	$879,868	$770,614	$743,998	-3.5%
Decontamination & Decommissioning	$125,368	$128,980	$122,586	-5%
Long-Term Surveillance & Maintenance	$1,507	$1,709	$2,554	49.4%
Landlord	$70,047	$65,805	$63,387	-3.7%
Compliance Oversight	$8,997	$12,074	$12,139	0.54%
Government Contribution to D&D Fund	$133,700	$350,000	$376,648	7.6%
Rocky Flats Waste Operations	$110,814	$74,289	$100,321	35%
Rocky Flats Site Stabilization	$339,079	$400,581	$340,561	-14.9%
TOTAL	$1,669,380	$1,804,052	$1,762,194	-2.3%

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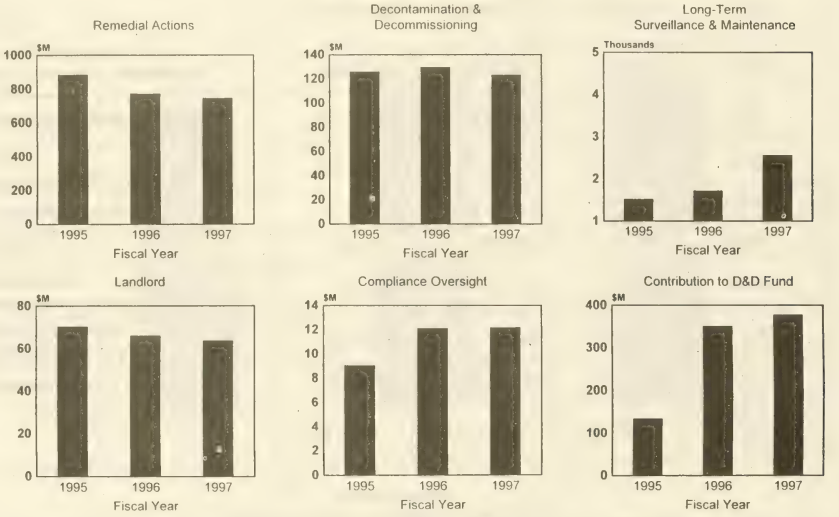
Table D-3
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

Budget Trend - Defense



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ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

ALBUQUERQUE

I. Mission Supporting Goals and Objectives

The ER Program managed through the Albuquerque Operations Office supports activities at six sites in the States of Missouri (Kansas City Plant (KCP)), Texas (Pantex Plant), California (Sandia National Laboratories), and New Mexico (Los Alamos National Laboratory (LANL), Sandia National Laboratories (SNL), and the Albuquerque Operations Office.

The KCP is part of a 300-acre Federal complex located 12 miles south of downtown Kansas City, Missouri. In FY 1993, the Department shut down several facilities across the country and consolidated the production of non-nuclear components at the KCP site. Major environmental restoration efforts at the KCP include the restoration of 42 potentially contaminated release sites.

The Pantex Plant is located near Amarillo, Texas. The Pantex Plant has responsibility for ensuring the quality of the Nation's nuclear weapons stockpile, including dismantlement and maintenance. In FY 1994, the site was placed on the National Priorities List (NPL), thereby requiring remediation under CERCLA authority. Major environmental restoration activities at this site include the assessment of 144 solid waste management areas.

The SNL/CA facility is located adjacent to the Lawrence Livermore National Laboratory in California. The facility occupies an area of approximately 100 acres. Major environmental restoration activities include the cleanup of a 59,000 gallon diesel fuel oil spill from an underground transfer pipe.

The LANL encompasses over 43 square miles in northern New Mexico. LANL conducts major programs in multiple areas, including applied research in nuclear and conventional weapons development, nuclear fission and fusion, nuclear safeguards and security, and environmental and energy research. The environmental restoration LANL budget supports a variety of activities related to approximately 2,150 potential release sites which have been aggregated into 7 field units.

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I. Mission Supporting Goals and Objectives - Albuquerque (Continued)

The SNL/NM site, located in Albuquerque, New Mexico, is a research and development facility with a primary mission of developing, engineering, and testing non-nuclear components of nuclear weapons. Major environmental restoration efforts involve the remediation of inactive waste disposal and release sites at Albuquerque, Tonopah Test Range, Kauai Test Facility, Holloman Air Force Base, and a number of other remote locations. A total of 219 sites have been identified for further assessment and possible remediation. These sites have known or suspected releases of hazardous, radioactive, or mixed waste.

The Albuquerque Operations Office manages, coordinates, tracks, and assists in the implementation of the environmental restoration program among the Pantex, Kansas City, Sandia Laboratories, and LANL sites. Other environmental restoration activities managed by the Operations Office include cleanup efforts related to the South Valley Site located near Albuquerque, which was owned by the Atomic Energy Commission and operated by the American Car Foundry Company from 1951 to 1967. DOE is a potentially responsible party (PRP) under a tri-party agreement with the Air Force and General Electric for environmental restoration activities at the South Valley site. Agreements-in-Principle (AIPs) with the States of Texas and Missouri are also managed and implemented by the Albuquerque Operations Office. Legal drivers at Albuquerque include RCRA, CERCLA, NEPA, State laws and codes, and DOE Orders.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 131,089	$ 105,631	$ 75,532	$ -30,099	-28
Decontamination & Dismantlement	7,018	5,800	5,602	-198	-3
Compliance Oversight	1,348	653	1,729	1,076	+165
Total, Albuquerque	$ 139,455	$ 112,084	$ 82,863	$ -29,221	-26

III. Performance Summary

FY 1995 Accomplishments

- Completed closure plan for Navy Landfill at SNL/CA.
- Continued Fuel Oil Spill bioremediation and Navy Landfill ground water monitoring activities at SNL/CA.

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III. Performance Summary - Albuquerque (Continued)

FY 1995 Accomplishments (Continued)

- Provided PRP contribution for remediation of South Valley Superfund Site.
- Completed interim actions at Firing Training Area Burn Pits and the High Priority Release sites at the Pantex Plant.
- Continued the long-term ground water treatment and monitoring program at KCP.
- Accelerated interim measures removal and clean-up of waste, oil tank, and substation 18 as part of the Plating Building project at the KCP.
- Completed assessment phase for the High Priority Release Sites, Fire Training Area Burn Pits, Misc. Chemical Releases, H-E RAD Site and supplemental verification sites and Former Cooling Tower, except chromate characterization at Pantex.
- Completed assessment field work for Landfills and Fire Training Area Burn Pits at Pantex.
- Completed Phase II field work and installed operational treatability system for ground water at Pantex.
- Submitted NFA on Old Sewage Treatment Plant and Underground Storage Tanks (UST) at other locations and on leaking USTs at Pantex.
- Submitted Draft Final RFIR to the Texas Natural Resource Conservation Commission on ditches and playas at Pantex.
- IED/GIS became operational at Pantex.
- Completed field work for investigations at 4 additional sites at Pantex; completed 5 additional RFI reports.
- Completed 8 D&D activities for Technical Area 16 H-E contaminated buildings at Pantex.
- Completed 26 RFI Reports for approximately 50 Solid Waste Management Units (SWMUs) at LANL. (complete September 1995)
- Continued preparation of RFI Workplans for Mortandad, Pueblo, and Los Alamos Canyons at LANL. (complete FY 1996)
- Continued remedial activities at all field units including completion of 45 voluntary corrective actions and expedited cleanups at LANL. (completed September 1995)
- Completed D&D activities at Technical Area 21 Building 3 and 4 South at LANL. (completed May 1995)
- Initiated D&D planning activities for Technical Area 21, Buildings 3 and 4 North, Building 146, and Building 324 at LANL. (complete FY 1996)
- Initiated D&D planning activities for Technical Area 16 High Explosives Contaminated Buildings at LANL. (complete FY 1996)
- Continued S&M of the SNL Engineering Reactor.
- Continued site-wide hydrogeologic characterization at SNL/NM.
- Completed 34 interim actions at SNL/NM.
- Continued providing project oversight, technical review, and management assistance for the Salmon Sea Test Base, Kauai Test Facility, and Off-Site Area non-SNL/NM lead restoration projects.
- Continued technical support activities at SNL/CA and SNL/NM.
- Provided for AIP support to States for Albuquerque production sites (TX and MO).
- Performed non-site-specific activities including project management, project control, and facilities management.

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ENVIRONMENTAL RESTORATION - DEFENSE (Continued)

III. Performance Summary - Albuquerque (Continued)

FY 1996 Accomplishments (To Date and Planned)

- Complete the ICM/CMS phase and submit Draft Final RFIR at the Firing Sites at Pantex.
- Complete ICM on Ditches & Playas at Pantex.
- Complete CAP report and closure on leaking USTs at Pantex.
- Continue Program Management and technical support activities at Pantex.
- Complete Final RFI Report and NFA Request on Misc. Chemical Spills and Supplemental Verification Sites at Pantex.
- Complete Final RFIR and NFA Request on HE Rad Sites at Pantex.
- Complete ICM, submit Group II Draft Final RFIR, and finalize Group I RFIR on Landfills at Pantex.
- Complete Fate and Transport Model on Landfills t Pantex.
- Complete Groundwater Protection Project at Pantex.
- Finalize Federal Facility Agreement as required by CERCLA at Pantex.
- Complete Final RFI Report, NFA Request, and closure on High Priority Release Sites at Pantex.
- Complete Phase II characterization, Final RFI Report and NFA Request on Burning Grounds at Pantex.
- Complete Phase II of treatability system and Draft Final RFIR on Groundwater at Pantex.
- Complete ICM, RFIR, and closure on FTA Burn Pits at Pantex.
- Complete chromate study characterization project and file Final RFIR on Former Cooling Tower at Pantex.
- Complete assessment phase for the Outfall 001/Northeast Area and Miscellaneous Contaminated Sites at KCP.
- Start remediation activities at the Miscellaneous Contaminated Sites and Northeast Site/Outfall 001 Department 27 and the maintenance vehicle repair shop sump at the Kansas City Plant.
- Begin assessment activities for the 95th Terrace Site at the KCP.
- Receive NFA designation for the South Lagoon Site at the KCP.
- Demonstrate at field microwave technology and deep soil mixing technologies at the KCP.
- Accelerate interim measures clean-up of pipe gallery and acid alkaline tanks at the KCP.
- Continue assessment activities for 5 subprojects (submitted multi-site Corrective Measures Study to EPA for review) at the KCP.
- Complete remediation activities at Miscellaneous PCB sites/Miscellaneous Sites and 001 Outfall DO1 Raceway/NE Site at KCP.
- Complete 37 RFI Reports for approximately 54 SWMUs at LANL. (complete September 1996)
- Complete RFI Workplans for Pueblo, and Los Alamos Canyons at LANL. (complete December 1995).
- Continue remedial activities at all field units including completion of 52 voluntary corrective actions and expedited cleanups at LANL. (complete September 1996)

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III. Performance Summary - Albuquerque (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)

- Complete planning activities for Technical Area 21 Buildings 3 and 4 North. Complete remediation of Technical Area 21 Buildings 146, 305, 324, and 329 at LANL. (complete September 1996)
- Complete remediation of 7 buildings associated with Technical Area 16 HEs Contaminated Facilities at LANL. (complete September 1996)
- Complete D&D activities at Technical Area 35 Phase Separator Pit at LANL (3 structures) by FY 1997.
- Continue assessment field work for ten major restoration projects at SNL/NM.
- Complete site-wide hydrogeologic characterization at SNL/NM.
- Complete 17 voluntary corrective measures at SNL/NM.
- Complete over 30 NFAs at SNL/NM.
- Complete environmental assessment at SNL/NM.
- Continue Fuel Oil Spill bioremediation and Navy Landfill ground water monitoring activities at SNL/CA.
- Provide the DOE PRP contribution for the remediation of the South Valley Superfund Site located in Albuquerque, New Mexico.
- Continue compliance activities required by three-party settlement agreements for the South Valley Superfund Site.
- Accelerate completion of assessment phase for seven major restoration projects at SNL/NM.
- Continue closure of Navy Landfill at SNL/CA.
- Continue managing the environmental restoration program at the Production Plants to ensure compliance with regulatory and DOE requirements.
- Continue technical support activities at SNL, NM, and CA locations, and at Pantex.

FY 1997 Planned Accomplishments

• Continue remediation of the Firing Sites at Pantex	$ 113
• Complete remediation of the HE Sites at Pantex	150
• Complete remediation of the Ditches and Playas at Pantex	44
• Complete remediation of USTs at other sites at Pantex	1,826
• Provide Program Management Support for Remedial Activities at Pantex	2,701
• Continue Zone 12 Groundwater Assessment and Remediation at Pantex	4,239
• Continue Miscellaneous Chemical Spill Sites Assessment and Remediation at Pantex	340
• Complete nine Field Investigations at Field Unit 1 at LANL	3,805
• Complete one CMS at Field Unit 1 at LANL	379
• Complete two Expedited Cleanups at Field Unit 1 at LANL	950
• Complete all RFI Fieldwork at Field Unit 2 at LANL	269
• Complete seven RFI Reports at Field Unit 2 at LANL	742
• Complete two Expedited Cleanups at Field Unit 2 at LANL	3,739

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III. Performance Summary - Albuquerque (Continued)

FY 1997 Planned Accomplishments

• Complete two Expedited Cleanups at Field Unit 3 at LANL	1,750
• Complete one CMS at Field Unit 3 at LANL	500
• Complete PH 1 Sampling and one RFI Report at Field Unit 3 at LANL	1,550
• Complete two RFI Reports at Field Unit 4 at LANL	2,460
• Complete two Expedited Cleanups at Field Unit 4 at LANL	500
• Complete 3 Field Investigations at Field Unit 5 at LANL	1,320
• Complete two RFI Reports at Field Unit 5 at LANL	250
• Complete one CMS at Field Unit 5 at LANL	280
• Complete two Expedited Cleanups at Field Unit 5 at LANL	1,300
• Continue ADS Preparation and Data Management Activities for all Field Units at LANL	1,805
• Complete and submit 33 RFI Reports at Field Unit 1 at LANL	3,512
• Complete closure of TA-35 Waste Oil Storage Pit at LANL	285
• Complete MDA P Closure Activities at LANL	1,700
• Continue Framework and Pilot Studies for all Field Units at LANL	1,541
• Continue Program Management Activities for all Field Units at LANL	11,350
• Continue D&D activities at TA-21 and D&D Planning at LANL	10,238
• Complete assessment of Septic Tanks and Drain Fields at SNL/NM	392
• Complete assessment of TA-II at SNL/NM	250
• Complete remediation of TA-III and V at SNL/NM	306
• Complete assessment of the Chemical Waste Landfill at SNL/NM	636
• Complete assessment of Mixed Waste Landfill at SNL/NM	713
• Continue assessment of TA-I at SNL/NM	3,434
• Continue activities in support of CAMU Development at SNL/NM	3,398
• Continue assessment of Central Coyote Test Area at SNL/NM	905
• Continue assessment of Foothills Test Area at SNL/NM	864
• Continue Technical Support Activities at SNL/NM	2,140
• Provide Program Management Support for Remedial Activities at SNL/NM	2,061
• Continue Program Management Support for Remedial Activities at SNL/CA	817
• Continue Fuel Oil Spill Site Remediation at SNL/CA	1,363
• Complete Closure of Navy Landfill at SNL/CA	11
• Continue compliance monitoring at SNL/CA	483

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III. Performance Summary - Albuquerque (Continued)

FY 1997 Planned Accomplishments	
• Continue Remediation of Maintenance Vehicle Repair Shop at KCP	1,537
• Continue Program Management Support for ER activities at KCP	1,770
• Continue Groundwater Monitoring and Treatment at KCP	994
• Continue Plating Building Remediation at KCP	423
• Continue TCE Still Area Remediation at KCP	359
• Continue Assessment and Remediation of South Lagoon at KCP	111
• Continue Remediation of Outfall 001 Raceway at KCP	184
• Complete closure activities at KCP	74
Total FY 1997, Albuquerque	$ 82,863

Explanation of Funding Changes FY 1996 to FY 1997:

- At Los Alamos National Laboratory, Environmental Restoration work will be reprioritized to focus on high-priority activities (Town Sites Remediation, Canyons Assessments) and other low-priority activities will be deferred. Decontamination and Decommissioning activities will be decelerated with focus on completion of activities currently underway and limited emphasis will be placed on new starts. $-10.9M
- At Sandia National Laboratories, decreased funding fully supports implementation of the Environmental Management Small Sites Strategy, assessment activities which may lead to No Further Action determinations and a number of Voluntary Corrective Measures to remediate solid waste management units will be deferred. $-10.5M
- At the Pantex Plant, decreased funding fully supports implementation of the Environmental Management Small Sites Strategy. The number of active sites will decrease in FY 1996 due to completion of activities. This trend will continue in FY 1997 with activities at several sites requiring minimal funding to address permit modifications and closeouts. $-3.8M

Major Issues:

- None.

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CHICAGO

I. Mission Supporting Goals and Objectives

The ER program managed through the Chicago Operations Office supports activities at three sites in two states. These sites include the Ames Laboratory (Iowa), Site A, and the Chicago Operations Office Site (Illinois).

The primary mission of the facilities under the Chicago Operations Office is research, development, and demonstration for DOE nuclear programs. This includes support of the nation's advanced reactor program and research on the fundamental properties of matter; physical, life, environmental sciences; magnetic confinement fusion and high-energy physics. By-products of this mission include transuranic waste, low-level waste, hazardous waste, and mixed waste (radioactive and hazardous combined). The Chicago Operations Office's facilities are aging, and many include former waste disposal sites that need to be assessed according to today's standards to determine the extent of environmental contamination.

The Chicago Operations Office manages, coordinates, tracks, and assists in the implementation of the environmental restoration program among the various sites. Major legal drivers include RCRA and State laws.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 2,707	$ 250	$ 933	$ +683	+273
Decontamination & Dismantlement	213	1,233	170	-1063	-86
Total Chicago	$ 2,920	$ 1,483	$ 1,103	$ -380	-26

III. Performance Summary - Chicago (Continued)

FY 1995 Accomplishments
- Completed underground storage tank removal, well plugging, abandonment and continued assessment at Site A in Illinois.
- Continued characterization at the Chemical Disposal Site to assess risk and comply with State regulations at a small site at Ames Laboratory.
- Continued S&M to maintain contaminated facilities in a safe condition.
- Provided technical support for all Chicago sites.

FY 1996 Accomplishments (To Date and Planned)
- Continue characterization at the Chemical Disposal Site to assess risk and comply with State regulations at a small site at Ames Laboratory.
- Continue S&M to maintain contaminated facilities in a safe condition.
- Provide for technical support for all Chicago sites.

FY 1997 Planned Accomplishments

• Complete characterization at the Chemical Disposal Site to assess risk and comply with State regulations at an Ames Laboratory small site	$ 200
• Continue S&M to maintain contaminated facilities in a safe condition at Site A and provide management, oversight, monitoring, and technical support for all Chicago sites	903
Total FY 1997, Chicago	$ 1,103

Explanation of Funding Changes FY 1996 to FY 1997:
- None.

Major Issues:
- None.

2081

IDAHO

I. Mission Supporting Goals and Objectives

The ER Program managed through the Idaho Operations Office primarily supports remediation activities at the Idaho National Engineering Laboratory (INEL) site. The INEL is located in southeastern Idaho along the western edge of the Eastern Snake River Plain and encompasses a semi-arid area of approximately 890 square miles. The Laboratory is a multipurpose DOE national laboratory providing primarily engineering expertise and operations/development support in the areas of spent nuclear fuel, waste management, environmental assessment and remediation, D&D of surplus facilities, alternative energy source development and technology transfer to Government and private industry. The ER budget supports a variety of legally-driven remediation activities at 98 different operable units (OUs).

These 98 OUs have been grouped into ten Waste Area Groups (WAGs) and include: (1) Test Area North (TAN), which consists of facilities for the handling, storage examination and research of spent nuclear fuel; (2) Test Reactor Area (TRA) which houses extensive facilities for studying the effects of radiation of materials, fuels and equipment; (3) Idaho Chemical Processing Plant which houses reprocessing facilities for Government-owned defense and research spent fuels; (4) Central Facilities Area (CFA) which contains many of the services for the entire site, including environmental laboratories, medical, etc.; (5) Power Burst Facility/Auxiliary Reactor Area (PBF/ARA) which served, for years, as the testing ground for nuclear fuels that power the nation's commercial nuclear reactors and is currently on standby status; (6) Experimental Breeder Reactor (EBR-I), which was the first reactor in the world to generate useable amounts of electricity; (7) Radioactive Waste Management Complex (RWMC) which is a controlled area established for the disposal of solid radioactive wastes generated in INEL operations and includes Pit 9 efforts which are aggressively investigating the use of commercially available remediation technology for application against buried transuranic waste (TRU); (8) Naval Reactors Facility which researched and developed prototype reactors for both submarines and surface ships and serves as a training school for officers and crew who operate reactors for the Navy; (9) ANL-W (ANL-W is managed through the Chicago Operations Office) which serves as the nation's testing ground for breeder-reactor technology; and (10) miscellaneous surface sites and liquid disposal areas throughout the INEL that are not included in the other WAGs.

Potential release sites addressed under ten WAGs include tanks, spills, disposal sites, wastewater disposal systems, leach pits, trenches, rubble piles, ponds, cooling towers, wells, landfills, storage areas, etc. Legal drivers at this site include a 1987 Consent Order (CO) and Compliance Agreement (CA); 1989 listing on the NPL; and a 1991 FFA/CO.

2082

II. Funding Schedule - Idaho (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 99,477	$ 87,389	$ 100,986	$ 13,597	+16
Decontamination &Dismantlement	3,897	4,676	5,913	1,237	+26
Compliance Oversight	1,635	1,900	2,360	460	+24
Total, Idaho	$ 105,009	$ 93,965	$ 109,259	$ 15,294	+16

III. Performance Summary

FY 1995 Accomplishments

- Completed 2 hazardous waste tank removals and three hazardous waste removal actions, and one radioactive sump cleanup (WAG 1).
- Performed Post ROD ground water monitoring perched water, submitted results to regulators; and performed operation and maintenance (O&M) for Warm Waste Pond Interim Action (WAG 2).
- Completed removal action at Waste Calcine Pit and awarded contract to remediate mercury contaminated soil (WAG 4).
- Completed CERCLA Interim Action activities at PBF/ARA Evaporation Pond and Waste Sump; and completed Sanitary Sewer Work Plan for ARA-03 and contaminated soil removal (WAG 5).
- Completed Pit 9 remedial design/remedial action (RD/RA) Scope of Work, Risk Assessment Remedial Objectives for non-TRU waste, and continued facility construction (WAG 7).
- Completed six Rad contaminated soil removal actions (WAG 10).
- Signed Vadose Zone ROD and completed RD/RA Scope of Work, and Phase I RD/RA Work Plan and constructed 15 monitor/extraction wells; and completed Pad A RA Report, and installed monitoring system (WAG 7).
- Finalized TAN Ground Water ROD, completed Comprehensive remedial investigation/feasibility study (RI/FS) Scope of Work and Work Plan, and continued other assessment activities (WAG 1).
- Completed Comprehensive RI/FS Work Plan and field characterization (WAG 2).
- Completed Comprehensive RI/FS Scope of Work, Work Plan and implement field work; and completed other assessment activities (WAG 3).
- Submitted CFA Sewer System Track 2 Report, completed CFA Pond field work, and finalized Landfills RI/FS Report, Proposed Plan and submitted Draft ROD (WAG 4).

III. Performance Summary - Idaho (Continued)

FY 1995 Accomplishments (Continued)

- Completed and submitted SL-1/Boiling Water Reactor Experiment I (BORAX I) draft RI/FS report, draft Proposed Plan, and draft ROD; completed Track 2 activities at five OUs, and completed installation of two monitoring wells at PBF (WAG 5).
- Completed SDA Soil Vaults Track 2 Report; completed Air Pathway Track 2 Report and Vadose Zone Track 2 S Report; completed TRU Pits and Trenches RI/FS Scope of Work, Work Plan; completed Comprehensive RI/FS screening evaluation for health and environmental risk (WAG 7).
- Completed Rad Contaminated Soils RI/FS Draft Report (WAG 10).
- Completed 22 acre Ordnance Removal Action (WAG 10).
- Performed S&M of TAN Technical Support Facilities (TSF), Materials Test Reactor (MTR), Experimental Test Reactor (ETR), CPP-740/SFE-20, CPP-601, Loft Ancillaries, CPP-640, and Waste Calcine Facility.
- Prepared environmental checklist and completed D&D plan for CPP-631, 709, 734.
- Completed D&D assessment activities and mobilized D&D equipment for Auxiliary Reactor Area I (ARA I) and continued S&M of Borax V and prepared Auditable Safety Analysis (ASA).
- Completed transport of Army Re-Entry Vehicle Facility Site NaK to ANL-W for treatment, continued D&D of ARA II, completed D&D and submitted D&D final reports for CFA-669 Hot Laundry and ARA III.
- Performed program management critical to INEL operations and FFA/CO and MSA compliance.
- Supported the FFA/CO grant to the State of Idaho.
- Funded the Shoshone-Bannock Tribe oversight expenses.
- Provided for contractor technical support for DOE-Idaho activities.
- Provided for MSA and FFA/CO reporting, administrative record, and external reviews.
- Provided for quality and compliance assurance, public participation, and data and sample management.

FY 1996 Accomplishments (To Date and Planned)

- Complete Pit 9 final SAR and technical safety review (TSR), complete facility construction, ORR, Prefinal design, RD/RA Work Plan, and initiate Limited Production Test (LPT).
- Perform Post ROD monitoring of perched water and perform O&M for Warm Waste Pond IA (WAG 2).
- Complete SL-1/Borax I ROD, submit RD/RA Scope of Work and Work Plan, and begin remedial activities.
- Complete TAN Ground Water Final ROD and develop RD/RA Scope of Work, continue TAN Injection Well IA, begin RA at TAN Ground Water, and begin TSF-09 V Tank removal action (WAG 1).
- Finalize Landfills RD/RA Scope of Work, develop preliminary RD, begin development of ASA/TSR, and begin remedial activities.
- Initiate Phase I RA for Vadose Zone, Phase I RD/RA Work Plan, SAR Documentation, operational self assessment and Phase I prefinal inspection report; and perform Pad A maintenance and monitoring (WAG 7).

2084

III. Performance Summary - Idaho (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)

- Implement Comprehensive RI/FS (WAG 1).
- Prepare and submit RI/BRA for Comprehensive RI/FS Report, prepare Proposed Plan, and submit draft RI/FS Report (WAG 2).
- Complete Comprehensive RI/FS RI/BRA report, (WAG 3).
- Finalize Landfills RI/FS ROD, complete assessment at two OUs, and complete Scope of Work, and draft work plan for Comprehensive RI/FS (WAG 4).
- Complete final Track 1 investigations (WAG 5).
- Complete Ground Water Pathway AS & IT report, column tests, and monitoring; perform Air and Ground Water Pathway routine monitoring; complete TRU Pits and Trenches RI/FS Work Plan, initiate RI/BRA Report, RI/FS report and risk assessment; and complete Comprehensive RI/FS Scope of Work, Work Plan, and initiate RI/BRA report.
- Complete Rad Soils proposed plan, ROD and RD/RA Scope of Work and ROD; continue Comprehensive RI/FS; monitor well drilling; continue assessment for ORME Leach Pond; and complete Rad Soils RD/RA Work Plan (WAG 10).
- Complete solidification of treated NaK, ship to RWMC and return treatment facility to pretreatment condition; continue D&D of ARA II; initiate D&D of ARA I; complete D&D preparation activities, complete D&D and submit final D&D report for BORAX V; and initiate D&D of CPP-631, 709, 734.
- Perform S&M of TAN TSF, MTR, ETR, Loft Ancillaries, CPP-740/SFE-20, CPP-601, CPP-640, and WCF.
- Perform program management critical to INEL operations and FFA/CO and MSA compliance.
- Support the FFA/CO grant to the State of Idaho.
- Fund the Shoshone-Bannock Tribe oversight expenses.
- Provide for contractor technical support for DOE-Idaho activities.
- Provide for MSA and FFA/CO reporting, administrative record, and external reviews.
- Provide for quality and compliance assurance, public participation, and data and sample management.

FY 1997 Planned Accomplishments

• Complete Pit 9 LPT, initiate remedial action and processing Pit 9 TRU waste (WAG 7)	$ 58,697
• Finalize RD/RA Scope of Work, develop preliminary RD, and begin development of RD/RA Work Plan (WAG 1)	3,482
• Perform O&M at Warm Waste Pond Interim Action (WAG 2)	283
• Complete Comprehensive RI/FS RD/RA Scope of Work (WAG 3)	957
• Finalize Landfills RD/RA Work Plan, finalize ASA/TSR, develop procurement package, prepare and finalize RD/RA Scope of Work; prepare comprehensive RI/FS Preliminary RD, prepare and finalize RD/RA Work Plan, and perform remedial action at OU 4-12 Landfills (cap the landfills) (WAG 4)	7,729
• Complete RD and initiate remedial action at SL-1/Borax I, and initiate RD/RA activities for cleanup of injection well and leach pond at PBF (WAG 5)	3,072

III. Performance Summary - Idaho (Continued)

FY 1997 Planned Accomplishments	
• Continue Vadose Zone Phase I remedial action and Phase I remedial action report; and continue Pad A O&M (WAG7)	2,168
• Initiate RAD soils remedial action (WAG 10)	1,535
• Complete Comprehensive RI/FS Report and continue assessment activities (WAG 1)	795
• Prepare and submit Draft RI/FS ROD and Proposed Plan (WAG 2)	563
• Finalize Comprehensive RI/FS Report, Proposed Plan, and prepare and submit Draft RI/FS ROD (WAG 3)	1,842
• Complete Comprehensive RI/FS scoping, implementation, and decision phases; prepare and submit RI/FS Work Plan; and perform field work (WAG 4)	837
• Complete and submit Final Comprehensive RI/FS Scope of Work (WAG 5)	1,023
• Complete Air Pathway and Ground Water Pathway routine monitoring; complete TRU Pits and Trenches RI/BRA report, RI/FS report and initiate Proposed Plan; and complete Comprehensive RI/FS RI/BRA report (WAG 7)	3,531
• Initiate assessment for OU 10-02 ORME Leach Pond; complete Comprehensive RI/FS; monitor well drilling; complete assessment for ordnance areas; and provide general support to all WAGs (WAG 10)	2,575
• Continue D&D of ARA I and complete D&D of CPP-631. 709, 734	3,100
• Perform S&M of ARA I, ARA II, TAN, TSF, MTR, ETR, Loft Ancillaries, CPP-740/SFE-20, CPP-601, WCF, and CPP-640	1,413
• Complete D&D of ARA II	1,400
• Provide technical support for assessment and remediation activities including program formulation, program execution, system integration and network planning, project control systems, quality assurance management, sample and technical data development, waste stream tracking, configuration management, D&D efforts, and remedial design/remedial action activities	9,896
• Provide funding for FFA/CO Grant to Idaho and Shoban Grant in support of Indian Tribe coordination, provide for technical support including technical data development by the United States Geological Services and University Foundation	4,361
Total FY 1997, Idaho	$ 109,259

Explanation of Funding Changes FY 1996 to FY 1997:

- Pit 9 transitions from engineering and construction in FY 1996 to the limited production test phase and full scale remediation in FY 1997. $+10.6M

Major Issues:

- None.

NEVADA

I. Mission Supporting Goals and Objectives

The ER program managed through the Nevada Operations Office supports activities at various sites in five states. These sites include the Nevada Test Site (NTS), DOE release sites on the Nellis Air Force Range, Project Shoal site, Central Nevada Test Area, the Tonopah Test Range, (Nevada) and "Offsite" test area locations in Colorado (Rulison and Rio Blanco), Mississippi (Salmon Site), New Mexico (Gasbuggy and Gnome-Coach), and Alaska (Amchitka Island). The NTS is located about 65 miles northwest of the City of Las Vegas and encompasses 1,350 square miles of desert and mountainous terrain and is surrounded on three sides by the Nellis Air Force Range. The United States conducted 1,054 above and below-ground nuclear tests, of which, 928 occurred at the NTS. The remaining 126 nuclear tests were conducted at other sites in and outside of Nevada. Since the 1992 weapons testing moratorium, the focus has now shifted to remediation of inactive sites and facilities that were contaminated during earlier testing activities. The Project Shoal area (in 1963) and the Central Nevada Test Area (in 1968) were each the site of one underground nuclear test. The Tonopah Test Range was established in 1957 for ballistics testing of nuclear weapons, parachute delivery systems, and other non-nuclear functions for Sandia National Laboratories. Ground water at offsite nuclear test and experiment locations in Colorado, Mississippi, Nevada, Alaska, and New Mexico are monitored to ensure no migration of radionuclides occurs at these sites.

Beginning in FY 1996, an FFA/CO between the Nevada Division of Environmental Protection (State), DOE Nevada, and the Defense Nuclear Agency (which has release sites on the Nevada Test Site) will govern environmental restoration activities on the Nevada Test Site, Tonopah Test Range, DOE sites on the Nellis Air Force Range, and the two offsite test areas in Nevada -- Shoal and Central Nevada. Alaska and Mississippi guide monitoring and restoration activities at sites in those states. An AIP has also been established with the State of Nevada. Other legal drivers governing remedial action at Nevada Operations Office sites include the RCRA, CERCLA, The Atomic Energy Act, and applicable State laws.

2087

II. Funding Schedule - Nevada (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 31,502	$ 45,400	$ 51,095	$ +5,695	+13
Decontamination & Dismantlement	693	520	1,000	+480	+92
Compliance Oversight	2,348	1,971	1,097	-874	-44
Total, Nevada	$ 34,543	$ 47,891	$ 53,192	$ +5,301	+11

III. Performance Summary

FY 1995 Accomplishments

- Continued drilling near-field wells (3) to acquire data to complete hydrogeologic model, tested various model scenarios to serve as monitoring wells; designed and began implementing monitoring network based on the model results.
- Completed characterization and conducted planning for Double Tracks interim action soil clean-up in 1996.
- Continued environmental restoration site inventory; completed closure of U3fi RCRA site; removed 12 USTs and completed characterization and removal of 10 abandoned septic tanks.
- Continued long-term hydrological monitoring at eight off-site nuclear test sites in five States, conducted limited characterization for the Salmon Site, and began remediation of drilling mudpit at Rulison Site in Colorado.
- Completed AIP with State of Alaska.
- Completed D&D Title I design for one facility; continued characterization for two additional facilities and completed D&D of one facility.
- Removed and rendered harmless over 20,000 pieces of ordnance from 5 sites on the Tonopah Test Range.
- Provided program management support for AIP funding, program and project management, and completion of DOE/Nevada Site-wide Environmental Impact Statement (EIS).

FY 1996 Accomplishments (To Date and Planned)

- Complete negotiations for FFA for DOE facilities/sites in Nevada.
- Complete interim soil removal action at the Double Tracks Site and begin characterization of plutonium contaminated sites on Tonopah Test Range.
- Continue drilling near-field wells (4) to acquire data for hydrogeologic model; complete hydrogeologic model and design and begin implementing monitoring network based on results of the model.
- Remove 12 USTs; complete closure of one RCRA site and characterize two more; and remediate two sites on the Tonopah Test Range.

2088

ENVIRONMENTAL RESTORATION - DEFENSE (Continued)

III. Performance Summary - Nevada (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)

- Continue long-term hydrological monitoring at eight off-site nuclear test sites in five States, begin remediation of three mudpits at Central Nevada Test Area in Nevada, and properly abandon the emplacement shaft at the Project Shoal Site.
- Increase geological coring, and accelerate ground water modeling, risk assessments, and database management system development and implementation of monitoring network. Complete regional groundwater model for the NTS.
- Complete field for site characterization at Salmon Site in Mississippi.
- Complete remediation of the petroleum contaminated mudpit at Rulison Site in Carlsbad.
- Provide program management for FFA management, program and project management, and completion of the Environmental Management EIS.

FY 1997 Planned Accomplishments

• Continue drilling near-field wells for implementing monitoring networks for ground water impacted by underground nuclear testing	$ 22,727
• Remove 12 USTs; close 2 RCRA sites, start closure of two more, and perform characterization of two additional on NTS. Continue implementation of Tonopah Test Range workplan	10,600
• Finish remediation and implementation of ground water monitoring networks at the Project Shoal and Central Nevada Test Area Offsites; conduct monitoring at 8 offsites in 5 states	4,481
• Begin interim action cleanups of the "Clean Slate" Plutonium soil contamination sites at Tonopah Test Range, begin work on hydrodynamic test sites, and do revegetation of Double Tracks	8,401
• Perform S&M on seven facilities on NTS	1,000
• Provide program management support for FFA/CO management, program and project management, and AIPs with States of Nevada, Alaska, and Mississippi	5,983
Total FY 1997, Nevada	$ 53,192

Explanation of Funding Changes FY 1996 to FY 1997:

- Accelerate remediation of Clean Slate Plutonium soil sites on Tonopah Test Range and begin characterization of hydrodynamic soil sites.
- Finish additional RCRA closure site, start closure of another, and begin characterization of another on the Nevada Test Site. $+5.3M

Major Issues:

- None.

2089

OAKLAND

I. Mission Supporting Goals and Objectives

The ER Program managed through the Oakland Operations Office supports activities in the state of California at three defense related locations. These locations include: Lawrence Livermore National Laboratory (LLNL) consisting of the Livermore Site and Site 300, a small portion of the Santa Susana Field Laboratory (SSFL)/Energy Technology Engineering Center (ETEC); and technical support efforts at Oakland Operations Office.

LLNL occupies two sites in northern California. The Livermore Site has an area of approximately 1 square mile and is located 40 miles east of San Francisco, just east of the city of Livermore. Site 300, which comprises approximately 11 square miles, is located 15 miles southeast of the Livermore Site. Both LLNL sites are on the NPL. LLNL is a multi-disciplinary research laboratory, specializing in weapons research and development. ER activities at LLNL have been divided into 7 different OUs (1-Livermore Site; 6-Site 300). RAs at LLNL primarily focus on contaminated ground water at the two LLNL sites.

The SSFL is a 2,700 acre site located in Simi Valley, California, and is owned and operated by Rockwell International. Approximately 90 acres of the site has been furnished to the Department by Rockwell, for ETEC. ETEC has provided management, engineering, and project oversight on a wide range of Departmental programs involving the testing of nonradioactive components. Major environmental restoration efforts focus on cleanup for unrestricted use of the Rockwell Hot Lab, which supported past Defense Programs activities.

The Oakland Operations Office manages, coordinates, tracks, and assists in the implementation of the environmental restoration program among the multiple sites. In addition, the Oakland Operations Office manages and implements grants for the State of California oversight activities. Major legal drivers at Oakland sites include FFAs, RCRA, the Toxic Substances Control Act, California Porter-Cologne Act, and the Clean Water Act.

II. Funding Schedule - Oakland (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 25,012	$ 23,392	$ 22,687	$ -705	-3
Decontamination & Dismantlement	700	3,500	1,000	-2,500	-71
Compliance Oversight	325	200	394	+194	+97
Total, Oakland	$ 26,037	$ 27,092	$ 24,081	$-3,011	-11

III. Performance Summary

FY 1995 Accomplishments

- Continued operation for five ground water/soil vapor pump and treat systems essential for on-site plume containment as required by the ROD; completed design of pipeline extensions for Treatment Facilities (TF) A, B, and C and connect wells; submitted draft compliance monitoring plan; completed construction and begin operation/maintenance of Building 518 vapor extraction system; completed design work for TF G-1 as part of ROD requirements for risk reduction and source removal; and continued regulatory compliance and program management for activities at LLNL Livermore Site.
- Continued monitoring and analysis of the tritium plume in the soil near Building 292 source area, conducted source area investigations around Buildings 419 and 331 to meet ROD requirements and shutdown of TFF fuel hydrocarbon vapor extraction system at LLNL Livermore Site.
- Completed final feasibility studies (FS) for two OUs, one draft final Proposed Plan, and one draft and final (interim) ROD; continued three interim actions to prevent further containment migration based on Baseline Risk Assessment; submitted draft basin plan amendment to exempt Building 834 from ARARs; achieved regulatory approval for natural remediation for capping of Pit 6 (OU3); and provided essential program management activities at LLNL Site 300.
- Completed decontamination of 4 hot cells and decon rooms, service gallery, support drain removal, removal of RA exhaust system, operating gallery and mockup area, and decontamination of the basement at the Rockwell International Hot Lab (Building 020) at SSFL.
- Provided technical support services to Oakland and payments for State grants.

2091

III. Performance Summary - Oakland (Continued)

FY 1996 Accomplishments (To Date and Planned)

- Continue regulatory compliance activities under the FFA, such as monitoring, sampling, operations and maintenance, community relations, risk analysis, and report preparation; continue operation, data collection and interpretation and well installation at five treatment facilities and Building 518; support construction, activation, and operation of Treatment Facility C-North pipeline and Treatment Facility G-1; issue final compliance monitoring plan, complete the Draft Contingency Plan, conduct ground water characterization, hydrogeologic analyses, capture design, treatment process design, and small equipment purchases for Trailer 5475 area (all regulatory requirements in the Remedial Action Implementation Plan schedule); and provide program management support at the LLNL Livermore Site.
- Continue assessment field work for three of six OUs at the LLNL Site 300; develop, prepare and complete one draft and final Proposed Plan for General Services Area (GSA) and, one draft ROD for GSA; continue ground water sampling and analysis and water level measurements to monitor hydrogeology; submit monthly reports to regulators; continue removal actions at Eastern GSA Area and Central GSA Area; complete Building 834 Interim Action; hold three public meetings on Site 300 ER activities, and provide for program management activities.
- Complete decontamination of attic, storage/airlock area, six rooms, roof, loading dock, asphalt, concrete pads, outside yard, office, and change rooms at the Rockwell Hot Lab (Building 020) at SSFL.
- Provide technical support services for the Oakland Operations Office and State grants.
- Prepare and submit to regulators capping design document for Pit 6, install monitoring wells in building 815 area to demonstrate contamination is not migrating offsite, preparation of document for completion of characterization work at building 850.

FY 1997 Planned Accomplishments

• Provide for regulatory compliance activities such as reporting, sampling and analysis, risk analysis, ground water monitoring, and quality assurance and control; supports O&M of six ground water treatment facilities and one soil vapor treatment facility at Building 518 at levels identified in ROD; complete and issue contingency plan and Remedial Design Report No. 4 to regulators; begin process for five-year review of ROD; and provides for associated program management costs for LLNL Livermore Site	$ 12,539
• Finalize High Explosive (HE) Burn Pit Closure Plan procurement bid package in compliance with RCRA requirement; continue O&M of treatment facility at Building 834 and test technologies while monitoring progress of cleanup; complete ROD for GSA (OU1) and implement remedial action; complete capping of Pit 6 (OU3) as removal action; provide for implementation of remedial alternatives for process area/Bldg 815 (OU4); and Building 850/Pits 3 and 5 (OU5); complete all characterization work for Building 832 Canyon (OU6); and continue site wide monitoring requirements; and provide for program management costs for LLNL Site 300	9,973
• Complete Rockwell International Hot Lab D&D (small sites initiative), final survey, independent verification, release, demolition, and site regrading at SSFL	1,000
• Provide direct contractor support to the Oakland Operations Office for cost estimating, reporting, and technical review and provide funding to the State of California agencies for oversight activities	569
Total FY 1997, Oakland	$ 24,081

2092

III. Performance Summary - Oakland (Continued)

Explanation of Funding Changes FY 1996 to FY 1997:
- Decrease in D&D funding due to small site acceleration funding received in FY 1996 for completion of Rockwell Hot Lab at ETEC in FY 1997 (-$2.5M)

Major Issues:
- None.

2093

OAK RIDGE

I. Mission Supporting Goals and Objectives

The ER Program managed through the Oak Ridge Operations Office consists of five sites including Y-12, Oak Ridge National Laboratory (ORNL), K-25, and the Oak Ridge Operations Office. The Oak Ridge Reservation (ORR) consists of three sites (K-25, Y-12, and ORNL). The ORR covers approximately 37,000 acres of Oak Ridge, Tennessee, and was placed on the NPL in 1989. During its 50 years of operation, portions of the ORR have become contaminated with radioactive elements.

Y-12 is approximately 811 acres and is located about 2 miles southwest of Oak Ridge, Tennessee. Y-12 has 15 OUs within 3 areas; Chestnut Ridge, Upper East Fork Poplar Creek, and Bear Creek Valley. The types of contamination include radioactive, hazardous, and mixed wastes.

ORNL is approximately 2,900 acres and is located about 10 miles southwest of Oak Ridge, Tennessee. ORNL is divided into 20 WAGs. The types of contamination include low-level radioactive material, organic solvents, corrosive wastes, PCBs, and heavy metals.

The K-25 site occupies 1,700 acres adjacent to the Clinch River, about 13 miles west of Oak Ridge. It was originally built to enrich uranium hexafluoride for Defense Programs. The majority of the 125 major buildings on the site are now inactive since production ceased in 1987. Only a small portion of K-25 activities are funded under the Defense appropriation including centrifuge and landlord efforts. The majority of K-25 funding is requested under the Uranium Enrichment Decontamination and Decommissioning Fund appropriation.

The Oak Ridge Operations Office manages, coordinates, tracks, and assists in the implementation of the ER program among the various sites. Efforts related to recycling of materials from the various Oak Ridge sites are also being supported, as well as crosscutting integration efforts related to the Oak Ridge sites. In addition, the Oak Ridge Operations Office manages oversight agreements with the States of Tennessee, Ohio, and Kentucky.

2004

II. Funding Schedule - Oak Ridge (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 55,957	$ 63,603	$ 58,613	$ -4,990	-8
Decontamination & Dismantlement	15,427	15,345	13,632	-1,713	-11
Landlord	8,810	6,353	4,243	-2,110	-33
Compliance Oversight	1,175	1,088	0	-1,088	-100
Total, Oak Ridge	$ 81,369	$ 86,389	$ 76,488	$ -9,901	-11

III. Performance Summary

FY 1995 Accomplishments

- Completed Kerr Hollow Quarry ROD at Y-12; WAG 5 ground water seeps treatment unit; and WAG 5 RI/FS at ORNL; completed WAG 1 Surface Impoundment operable unit RI/FS at ORNL.
- Conducted support activities including waste management; AIP grants; regulatory integration and technical support for risk assessment; supported mixed waste disposal initiative; initiated analytical lab upgrades; site-wide ground water compliance programs; and site-wide Oak Ridge Environmental Information Systems.
- Completed Lower East Fork Poplar Creek (LEFPC) Proposed Plan and ROD; ACAP phase II field work initiation and complete South Campus Facility RI/FS, and proposed plan, performed removal action at Sokoay Drums. Lower Watts Bar Rod completed.
- Completed the RMPE Mercury Source Elimination Project interim action at Y-12; and completed the Streamline Asbestos Removal from Plant 9201-4 at Y-12; and completed decommissioning of electrochemical machine room basement in Plant 9201-4 at Y-12.
- Conducted K-25 landlord support activities.

FY 1996 Accomplishments (To Date and Planned)

- Complete the CEER small site remedial activities.
- Complete one assessment, Chestnut Ridge OU2 Filled Coal Ash Pond at Y-12 and continue RMPE source elimination projects.
- At ORNL, complete one assessment, WAG 5 Old Hydrofracture Tank Sludge Removal, and one interim action, WAG 1 Tank Content Removal; complete Surface Impoundment OU Proposed Plan; complete WAG 4 Proposed Plan and ROD; and complete WAG 1 Process Waste Surge Tank Project.

III. Performance Summary - Oak Ridge (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)

- Conduct Wetlands testing and complete South Campus Facility Proposed Plan and approve no further investigation for Freels Bend Area.
- Initiate LEFPC disposal design and remedial design report; initiate LEFPC removal action work plan and remedial design report; and continue removal action at ACAP. Complete RI/FS for Clinch River.
- Conduct support activities including waste, treatment, storage and disposal activities at Y-12, K-25, and ORNL; AIP grants; regulatory integration and technical support for risk assessment; support mixed waste disposal initiative; continue analytical lab upgrades; site-wide ground water compliance programs; and site-wide Oak Ridge Environmental Information Systems.
- Complete two D&D Hazard Abatement (Tray Room Cleanup and Steam Coil Removal) interim actions at Y-12.
- Continue Landlord support activities at K-25.
- Complete remedial actions including Building 9409-5 Tank Storage Area RCRA Closure and Upper East Tank Poplar Creek Interim Drum Yard at Y-12.

FY 1997 Planned Accomplishments

• Conduct assessment and characterization activities for Bear Creek OU and start Remedial Action activities at Chestnut Ridge OU2 required by the FFA; perform interim actions for the Y-12 RMPE program for regulatory compliance .	$ 24,042
• Continue LEFPC disposal design and site removal design; continue LEFPC borrow area design; and complete LEFPC removal action work plan and remedial design report	9,600
• Conduct assessment and characterization activities for North and South Tank Farms and initiate construction for inactive tanks and tank content removal; complete surface impoundment OU ROD, and the WAG 2 RI; complete source characterization for remaining pits at WAG 2	29,600
• Conduct support activities including waste management; AIP grants; regulatory integration and technical support for risk assessment; site-wide ground water compliance programs; carry out limited efforts for recycling of materials from the various Oak Ridge sites; site-wide Oak Ridge Environmental Information Systems; and conduct K-25 landlord support activities	13,246
Total FY 1997, Oak Ridge	$ 76,488

Explanation of Funding Changes FY 1996 to FY 1997:

- Completion of decommissioning of six cooling towers at K-25. (-$10.0M)

Major Issues:

- None.

2096

OHIO

I. Mission Supporting Goals and Objectives

The ER Program, managed through the Ohio Field Office, supports activities at four sites in the State of Ohio. These sites are: Fernald, Battelle Columbus Laboratory (BCL), Reactive Metals Incorporated (RMI) and the Ohio Field Office.

The Fernald Environmental Management Project (FEMP) is a Government-owned, contractor-operated Federal facility that produced high-purity uranium metal products for the DOE and its predecessor agencies during the period 1951 to 1989. Thorium was also processed, but on a smaller scale, and is still stored on site. Uranium processing operations at the FEMP were limited to a fenced, 136-acre tract known as the Production Area. The remaining FEMP site consists of waste storage and disposal areas and forest and pasture lands, a portion of which is leased for livestock grazing. In November, 1989 the EPA placed the FEMP site on the NPL and in April 1990, DOE and EPA entered into a CA (since amended) for site remediation. The CA created five OUs covering total site remediation. The Fernald Environmental Management Project has implemented an accelerated cleanup schedule with site remediation scheduled for 2005 and saving approximately $2.6 billion.

The BCL site is located in Columbus, Ohio. Research and development work was performed at its facilities for the Department and its predecessors. The buildings are privately owned by Battelle and the facility retains an active NRC license for possession of special nuclear material. Fifteen buildings, or portions thereof, are radioactively-contaminated.

The RMI site, located in Ashtabula, Ohio, is owned and operated by the RMI Titanium Company, and is contaminated with both radiological and hazardous materials resulting from previous operations from the DOE to shape nuclear materials. The environmental restoration mission at the site is to D&D the site for unrestricted use.

The Ohio Field Office manages, coordinates, tracks, and assists in the implementation of the ER program among the various sites. In addition, the Ohio Field Office manages oversight activities with the State of Ohio.

II. Funding Schedule - Ohio (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 154,209	$ 196,388	$ 181,551	$ -14,837	-8
Decontamination & Dismantlement	27,669	36,044	49,260	13,216	+37
Landlord	61,237	42,373	56,364	13,991	+33
Total, Ohio	$ 243,115	$ 274,805	$ 287,175	$ +12,370	+5

III. Performance Summary

FY 1995 Accomplishments

- Completed D&D of Building KA-4; continued D&D of Building KA-5; and initiated D&D at KA-1 at BCL.
- Provided for low-level waste (LLW) shipments to an approved DOE site to reduce risk of further site contamination, and maintained waste minimization activities at BCL.
- Performed significant characterization and assessment, and completed required waste and soil shipments at RMI.
- Continued ongoing RI/FS efforts for OU3 and OU5; completed RODs for OU1, OU2, and OU4; completed two and continued six removal actions; completed the CDR and initiated Title 1 for OU1 at Fernald.
- Initiated and completed the OU1 RD workplan; initiated the OU1 RA workplan; initiated OU2 RD Workplans; completed the OU4 RD Workplan; and initiated the OU5 RD/RA Workplan at Fernald.
- Continued three detailed designs for the Inactive Flyash Pile and complete the disposal facility predesign investigation for OU2; continued three CDRs for ground water, soils, and sediments; completed three support projects; continued the Equipment Cleanout Program for OU3; and initiated operation of the AWWT project for OU5 at Fernald.
- Processed and disposed of 45,000 FT3 of LLW and 2,000 FT3 of mixed waste; and continued hazardous waste activities to comply with RCRA at Fernald.

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III. Performance Summary - Ohio (Continued)

FY 1995 Accomplishments (Continued)

- Continued project management support including subcontractor project management activities at Fernald.
- Continued health and safety support, emergency preparedness, site services, public affairs, quality assurance, training and support projects, including the asbestos management construction activities at Fernald.
- Provided for activities in support of ongoing lawsuits at Fernald.
- Provided funding for State of Ohio EPA oversight activities at Fernald.
- Continued environmental monitoring in support of restoration activities, laboratory services, Clean Air and Clean Water Act compliance effort, and support projects at Fernald.
- Provided for maintenance activities, utilities operation including boiler, water supply, sanitary sewer, and sump, security, procurement, and other facility services at Fernald.
- Completed the Uranyl Nitrate Hexahydrate Neutralization.

FY 1996 Accomplishments (To Date and Planned)

- Obtain NRC approval on the site characterization report and the site decommissioning plan at RMI.
- Disposition backlog uranium oxide, residues, and soils at RMI.
- Complete CAMV corrective measures assessment and develop technical specifications for decommissioning activities at RMI.
- Complete waste stream assessments for equipment and construction debris at RMI.
- Complete decontamination activities in six of the nine King Avenue building, resulting in the overall completion of decontamination work at the entire King Avenue site. Eight out of eight FY96 Performance Measures to be completed on time or ahead of schedule.
- Issue final ROD for OU5 and issue draft and final ROD for OU3; complete two and continue four removal actions; and initiate remedial action activities for OUs 1,2, and 4.
- Complete the OU1, OU2, and OU4 RA workplan; and initiate RD/RA workplan for OU3; complete OU5 RD workplan and initiate OU5 RD workplan.
- Initiate operation of the South Plume Recovery Wells and the Perched Water System; complete construction of the OU4 Vitrification Pilot Plant; and continue to operate site waste water treatment systems (including the AWWT, IAWWTs, Plant 8 Sump, General Sump and BDN/ETS) and the South Plume Well Field.
- Complete construction of a new sludge dewatering facility and initiate operations; and complete construction and begin remediation operations of the well field in the South Field area.
- Process and dispose of 40,000 DE's of LLW; process 2,000 DE's of mixed waste, and complete Thorium Overpack disposition.
- Complete construction and initiate operation of OU4 vitrification pilot plant.
- Complete Plants 1 and 4 D&D Projects; initiate operation of plant infrastructure; complete limited disposal facility design activities; complete limited railroad upgrade activities; and accelerate Safe Shutdown activities.
- Continue project management support including subcontractor project management activities and prepare for 10 year acceleration schedule.
- Complete restoration payments to Battelle, the facility private owner, for physical damages caused by decontamination activities.
- Project ramp-up to initiate the decontamination activities at West Jefferson North (consisting of three buildings and associated grounds). Buildings include a retired reactor building (JN-3) and a building (JN-1) which houses the largest Hot Cell facility built east of the Mississippi.
- Provide for surveillance and maintenance activities including environmental monitoring of the West Jefferson North site.

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III. Performance Summary - Ohio (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)

- Continue health and safety support, emergency preparedness, site services, public affairs, quality assurance, training and support projects, including the initiation of asbestos management construction activities.
- Provide for activities in support of ongoing lawsuits.
- Provide funding for State of Ohio EPA oversight activities.
- Continue environmental monitoring in support of restoration activities, laboratory services, Clean Air and Clean Water Act compliance effort, and support projects.
- Provide for maintenance activities, utilities operation including boiler, water supply, sanitary sewer, and sump, security, procurement, and other facility services.
- Disposition of 11,430 cubic feet of LLW and 577 cubic feet of RMW at BCL.

FY 1997 Planned Accomplishments

- Complete soil assessments for Areas C and D, Phase I equipment and building remediation, and 3 interim actions at RMI ..... $ 20,284
- Provide for environmental D&D activities at BCL 482
- Complete OU1 Treatment Plant Construction and initiate facility startup; complete Operational Readiness Review/Readiness Assessment and Title III Design for OU1; obtain Railroad Engine; and award contract and complete on site rail upgrade at Fernald 23,313
- Complete the OU2 RD/RA Workplans for all subunits; complete two OU2 Title I/II design packages and initiate Title III support; continue remediation operations of the wells in the South Field area, and initiate construction of the OU2 disposal facility and initiate post maintenance and monitoring at the disposal facility; and complete one OU2 remedial action at Fernald 17,776
- Initiate operation of the OU4 Vitrification Plant; continue construction activities for the OU4 Treatment Facility and purchase Treatment Facility equipment at Fernald 26,600
- Continue to operate site wastewater treatment systems including the AWWT, IAWWTs, AWWT Dewatering facility and the South Plume Well Field; expand the AWWT facility; continue RCRA , Design, Monitoring, Evaluation Program Plan (DMEPP) and South Plume and South Field area ground water monitoring; complete activities for Well Field design, off property excavation, and the Sewage Treatment Plant; initiate startup of injection wells at Fernald 24,661
- Dispose 32,400 cubic feet LLW and treat and dispose of 30,000-90,000 tons of waste from OU1 and complete disposition of nuclear material waste inventory at Fernald 16,200

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III. Performance Summary - Ohio (Continued)

FY 1997 Planned Accomplishments (Continued)	
• Complete the OU3 RD/RA Workplan; continue safe shutdown, complete SSD of one Facility and complete D&D of two facilities activities; and complete and issue Plant 4 final report at Fernald	52,342
• Continue project management support activities including health and safety support, emergency preparedness, site services, public affairs, quality assurance, training and support projects, including asbestos management construction activities; provide for activities in support of ongoing lawsuits; and State of Ohio EPA oversight activities. Initiate 10 year accelerated schedule	56,417
• Continue environmental monitoring in support of restoration activities, laboratory services, Clean Air and Clean Water Act compliance effort, and support projects; provide for maintenance activities, utilities operations including boiler, water supply, sanitary sewer, and sump, security, procurement, and other facility services at Fernald	49,100
Total FY 1997, Ohio	$ 287,175

Explanation of Funding Changes FY 1996 to FY 1997:
- Acceleration at Fernald results in increased D&D and Landlord activities and reduction in remedial action activities (+4.6M)
- Increase at RMI reflects movement of D&D phase (+$10.9M)

Major Issues:
- None.

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RICHLAND

I. Mission Supporting Goals and Objectives

The Environmental Restoration program managed through the Richland Operations Office supports activities at the Hanford site and the Richland Operations Office. Both sites are located in the State of Washington. The Hanford Restoration and Remedial Action Program includes remediation of inactive waste sites and D&D of surplus facilities at the Hanford site in southwestern Washington. Hanford covers 560 square miles and includes approximately 1,400 waste sites identified as potentially in need of remediation, and over 100 surplus facilities requiring decontamination. Restoration includes S&M, characterization, assessment, remediation, technology demonstration, and disposition of radioactive, hazardous, and mixed waste from various sites and facilities. Activities will also be carried out utilizing funds received from a non-federal source. The Department received $6.2 million from the Washington Public Power Supply System for eventual Decontamination and Decommissioning of part of the Hanford Generating Plant which was operated in conjunction with the N Reactor to produce power for the Washington State area. This funding will be used in FY 1997 to initiate cleanup and/or removal of radioactively contaminated systems at the Hanford Generating Plant and for characterization and remediation of any related contaminated solid waste management units. The Richland Operations Office manages, coordinates, tracks, and assists in the implementation of the ER program at Hanford. In addition, the Richland Operations Office implements and manages oversight activities with the State of Washington.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 130,272	$ 113,839	$ 90,863	$ -22,976	-20
Decontamination & Dismantlement	44,916	41,304	37,036	-4,268	-10
Long-term S&M	0	90	200	+110	+122
Compliance Oversight	1,893	2,200	2,700	+500	+23
Total, Richland	$ 177,081	$ 157,433	$ 130,799	$ -26,634	-17

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III. Performance Summary - Richland (Continued)

FY 1995 Accomplishments

- Performed two expedited removal actions at the 200 Area (CCl4 soil) and the 100 Area (N Springs).
- Completed remediation of the 1100 Area per the ROD.
- Received CERCLA ROD for the Environmental Restoration Disposal Facility (ERDF).
- Began construction of the ERDF.
- Performed remedial design work at 300-FF-1.
- Completed treatability testing at 200-UP-1.
- Began remedial design at selected waste sites in 100-DR-1 and 100-HR-1.
- Removed 3800 cubic yards of contaminated soil from 100-BC-1.
- Submitted 100-NR-1 and -NR-2 Work Plans to regulators.
- Completed N Springs barrier wall constructability test program.
- Installed and began operation of 50 gpm pump & treat system at N Springs.
- Submitted reports on N cribs skyshine abatement alternatives and N Springs ground water modeling.
- Completed Focused Feasibility Studies for ten OUs and Proposed Plans for nine OUs.
- Completed work plans for 3 OUs.
- Completed construction of the W-025A trench disposal facility.
- Performed/completed remediations under the Radiation Area Remedial Action (RARA) and Asbestos Abatement programs.
- Performed N Reactor minimum compliance, regulatory response activities, basin cleanout and preparation of NEPA Environmental Assessment.
- Completed removal of all contaminated equipment and radioactive and hazardous materials from the 190-D complex; continued plutonium inventory removal activities at 232-Z.
- Completed demolition of the 190-D complex; complete roof repairs and electrical upgrades on 105-D, 105-DR, 105-H, and 105-F.
- Conducted D&D/S&M for the 100 and 200 Areas.
- Provided for facility infrastructure upgrades, RI/FSs and ERA support studies and equipment, laboratory instrumentation upgrades, and Hanford Barrier and ground water technology testing.
- Provided for DOE-Richland, States and U.S. Army Corps of Engineers staffing, quality assurance, and Hanford Remedial Action EIS.
- Provided for program management program controls, baseline planning, records and data management and geographic information systems.

FY 1996 Accomplishments (To Date and Planned)

- Continue or complete remedial design for waste sites in 5 OUs.
- Complete RFI for 200-PO-1.
- Continue operation of N Springs pump & treat system.
- Begin 1301/1325 Crib Closure/CMS for N Area (CMS complete 3/97).
- Complete Focused Feasibility Study/Proposed Plan for 100-DR-2; continue ground water sampling, analysis and data validation.

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III. Performance Summary - Richland (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)

- Procure remediation equipment and perform remedial actions at 3 OUs.
- Perform 100-NR-1 and -NR-2 Corrective Measures/Focused Feasibility/Closure Plan studies (CMS complete 11/96).
- Perform remediation activities at 300-FF-1 and FF-5 OUs, and perform post-remediation ground water monitoring at 1100-EM.
- Complete construction of the ERDF.
- Conduct two ground water and one soil treatability tests in the 100 Area.
- Continue CCl4 vapor extraction at 200-ZP-2.
- Complete Proposed Plan for 100-IV-2 and 100-IV-6.
- Issue interim response measure proposed plan and focused feasibility study for 200-UP-2; issue ground water reports for I-129 and the 200 Common Area.
- Begin construction of a RCRA-equivalent barrier at 200-BP-1 (to be completed in FY 1997).
- Provide engineering, technical support, construction management, administration, and program management during ERDF construction.
- Perform cold testing at 300-FF-2 at the 618-10 burial ground.
- Complete treatability test plan for 300-FF-2; start feasibility study for 300-FF-2.
- Perform ground water remediation at 200-UP-1 and 200-ZP-1 at full-scale following treatability tests.
- Issue CERCLA RODs for 300-FF-1 and 300-FF-5 OUs.
- Perform S&M and corrective maintenance activities, safety assessments of inactive facilities in the 100 and 200 Areas.
- Perform remediations under the RARA and Asbestos Abatement programs.
- Initiate and complete demolition of the 183-C facility.
- Continue deactivation activities, cleanout of fuel storage basin, deactivate and stabilize twenty-one facilities (fourteen remain for FY 1997), and continue waste minimization, segregation, and compaction activities at N Reactor.
- Complete Phase I decontamination of 233-S; complete plutonium inventory reduction at 232-Z.
- Complete demolition of the 183-H Solar Basins.
- Provide program management for all Richland Hanford ER activities.
- Provide for the State of Washington grant.
- Provide for quality assurance and data management, direct support, and NEPA documentation.
- Provide for infrastructure development (general engineering, equipment, laboratory support), development and testing of technologies, and laboratory upgrades.
- Carry out NEPA planning and documentation for outyear activities.

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III. Performance Summary - Richland (Continued)

FY 1997 Planned Accomplishments	
• Treat ground water through the year and dispose of wastes at 200-ZP-1	$ 1,517
• Continue operation of vapor extraction to remove approximately 24,000 lbs. of carbon tetrachloride from soil at 200-ZP-2	1,454
• Dispose of waste at 200-UP-1 ground water treatment system, and upgrade system to full scale	1,594
• Complete construction of RCRA-equivalent barrier at 200-BP-1	630
• Continue ground water sampling, analysis, and data validation in the 100 Area ground water operable units	2,434
• Perform characterization and assessment at 2 OUs in the 100-HR Area	873
• Perform remedial design or remedial action planning at the HR, BC, and DR reactor areas	2,403
• Perform remedial actions at the BC and HR reactor areas, including excavation and removal of over 50,000 loose cubic yards of contaminated soil	13,991
• Complete and submit draft 1301/1325 Crib Closure/CMS for 100 N Area	108
• Complete revision of 100-NR-1 and NR-2 CMS/FFS/Closure Plan	108
• Continue remediation of 300-FF-1; consolidate waste at process ponds and trenches	8,880
• Continue operation of ERDF and transportation of wastes to ERDF	15,274
• Perform limited long-term surveillance and monitoring at 1100 Area and 300-FF-5	198
• Complete 300-FF-2 Feasibility Study	176
• Continue or complete 2 treatability tests at 100-HR-3 and 1 at 100-KR-4	8,074
• Perform 100-NR remediation and remedial action planning	2,454
• Complete deactivation of N Reactor facilities, including spent fuel basin cleanup; reactor for eventual D&D	15,422
• Complete 5 remediations and project management under the Asbestos Abatement Program; perform S&M activities on selected RARA sites	3,516
• Conduct D&D in the 100 and 200 Areas	3,648
• Complete decommissioning of 3 buildings in the 100 and 200 Areas; complete demolition of 8 buildings in the 100 Area and 2 in the 200 Area	8,496
• Provide technical support to eliminate high hazards identified in Risk Assessment Report	2,817
• Initiate definitive engineering for long-term reactor block isolation for interim safe storage	6,682
• Provide overall program management including safety and health engineering, assessment and environmental compliance activities, baseline maintenance, sample and data management, public involvement, design engineering, strategic planning and program reporting	30,050
Total FY 1997, Richland	$130,799

III. Performance Summary - Richland (Continued)

Explanation of Funding Changes FY 1996 to FY 1997: $-26,254

- FY 1997 is the first year in which DOE can perform budget planning for implementation of the ER refocusing, which was negotiated with the regulators in FY 1995. The refocusing places a major emphasis on clean-up of near river contaminated sites and protection of ground water, as opposed to assessment activities.

Major Issues:

- None.

ROCKY FLATS

I. Mission Supporting Goals and Objectives

The Rocky Flats Environmental Technology Site is located 16 miles northwest of Denver, Colorado. The site comprises approximately 11 square miles, including a buffer zone between the site and its boundaries. The plant was used to shape plutonium, fabricate alloy, and operate conventional metal production processes. When operations ceased, large amounts of plutonium, plutonium compounds, and metallic residues remained in the production lines, tanks, and process furnaces. In addition, contamination exists in soil, sediments and groundwater at the site. With the discontinuation of nuclear weapons component production at Rocky Flats and consolidation of non-nuclear production activities to other sites, Rocky Flats' new mission is to manage waste and materials, and to clean up and convert the site to beneficial use in a manner that is safe, environmentally and socially responsible, physically secure, and cost effective.

The highest priority at Rocky Flats continues to be the protection of workers, the public, and the environment from exposure to plutonium and the potentially hazardous materials, and to safeguard plutonium from terrorists and espionage. This plus compliance with laws, legal agreements, DOE Orders, and other requirements that affect conduct of site activities are core activities, which form a significant portion of the site budget.

In 1997, the budget request consolidates all activities at the Rocky Flats site under the Environmental Restoration area of the budget. This includes remediation efforts, waste management, deactivation activities, and all other site support.

Liability reduction activities will focus on reducing risks and/or cost of core activities. Key risk reduction activities and strategies at the site include: preparing and packaging material for shipping hazardous and excess materials off site, consolidating plutonium in safer and easier to secure locations, converting plutonium liquids to a solid, safer and easier-to-handle form, providing ventilation of containers that have potential of hydrogen generation, and removing sources of contamination in the ground to cease or inhibit further spreading.

Key core cost-reduction activities include: deactivating high upkeep facilities that are no longer needed, re-engineering processes and procedures for greater efficiency, and installing labor-saving technology and equipment.

The waste management program focuses on safe, compliant, and cost-effective waste minimization, storage, treatment, and disposal of low-level, mixed low-level, transuranic, mixed transuranic, hazardous, and sanitary waste. Rocky Flats has approximately 600 m3 of transuranic waste, 12,000 m3 of mixed low-level waste, 550 m3 of transuranic-mixed waste, and 5400 m3 of low-level waste stored on site. The program's near-term goals involve continuing treatment of hazardous and sanitary waste, offsite shipment and disposal of low-level waste, development of treatment capacity for mixed waste, and characterization and certification of transuranic and mixed transuranic waste for ultimate disposition at the Waste Isolation Pilot Plant.

I. Mission Supporting Goals and Objectives - Rocky Flats (Continued)

The environmental restoration program is working to assess and clean up the 178 Individual Hazardous Substance Sites (IHSSs) identified at Rocky Flats and to conduct decommissioning activities in buildings where deactivation has been completed. The IHSSs were originally grouped into 16 operable units, three of which have been closed through No-Further-Action Records of Decision. The Industrial Area operable units have been consolidated to streamline the program, and further consolidation and streamlining is possible.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 112,372	$ 37,810	$ 60,260	$ +22,450	+59
Decontamination & Dismantlement	4,316	3,105	0	-3,105	-100
Long-term S&M	0	0	400	+400	+100
Landlord	0	17,079	2,780	-14,299	-84
Rocky Flats - Waste Operations	110,814	74,289	100,321	+26,032	+35
Rocky Flats - Site Stabilization	339,079	400,581	340,561	-60,020	-15
Total, Rocky Flats	$ 566,581	$ 532,864	$ 504,322	$ -28,542	-5

III. Performance Summary

FY 1995 Accomplishments (Environmental Restoration)

- Completed excavation of contaminated material from Ryan's trench, excavated four PCB hot spots and one radiologically contaminated hot spot from OU 1, and completed accelerated actions at Silos 1 and 2.
- Operated the treatment system for interim RA (IRA) at the 881 Hillside (OU 1) to treat contaminated ground water, completed CMS/FS and submitted Proposed Plan at OU 1.
- Continued assessment of potential soil/ground water contamination resulting from Present Landfill (OU 7) Operation; submitted draft IM/IRA decision document to collect and treat leachate.
- Operated the treatment system as part of the IRA for collection and treatment of contaminated water from surface seeps at the 903 Pad, Mound and East Trenches (OU 2); continued operation of the OU 2 subsurface IRA to remove volatile organic from soil; and continued assessment of soil, bedrock, and ground water contamination, to be completed in FY 1997.
- Finalized assessments and continue FSs for the Off-site Areas (OU 3) for soil, surface water, and sediment contamination primarily resulting from windblown radionuclides and spills to creeks.

III. Performance Summary - Rocky Flats (Continued)

FY 1995 Accomplishments (Environmental Restoration (Continued)

- Completed removal of contaminated sludges and waste from the Solar Ponds (OU 4); completed the stack and repack of pondcrete: continued RCRA compliance activities for storage of pondcrete and sludge resulting from removal and solidification of OU 4 sludge contaminated with mixed waste; continued operation of the OU 4 IRA Interceptor Trench System and treatment of captured ground water; and continue assessment of soil and ground water contamination resulting from the leakage of wastes from OU 4.
- Continued assessment of soil and ground water contamination and FSs at Woman Creek (OU 5) and Walnut Creek (OU 6) resulting from incinerator and landfill activities, retention ponds, ash pits, sludge dispersal, waste burial, and spray irrigation; submitted RI/RFI FS/CMS documents; completed Pond Water IM/IRA Decision Document; completed accelerated action to clean up filter socks.
- Continued assessment, using non-intrusive methods, of potential soil and ground water contamination at the Industrial Area; submitted Industrial Area IM/IRA decision document.
- Submitted RI/RFI report for West Spray Field (OU11) and completed No Further Action ROD, four years ahead of IAG schedule.
- Completed assessment at the Inside Building Closures (OU15), with a No Further Action ROD, three years ahead of IAG schedule.
- Continued operation and maintenance of field assessment equipment decontamination facilities.
- Continued design, construction, and operation of various units of the Waste Handling/Treatment Facilities for ER site-wide waste.
- Conducted D&D pilot projects in several buildings.
- Continued site-wide activities including data management, administrative record, public participation and environmental impact statement activities, treatability study, risk assessment, and geological studies to reduce site characterization costs; provided planning support for accelerated cleanup actions, completed the final geological characterization report.
- Shipped 343 drums of waste from OUs 1 and 2 to Envirocare.
- Completed the initiative to further safeguard drinking water supplies for communities in the vicinity of Rocky Flats (Option B-Off-site Water Management) and continued Option J (On-site Water Management) including activities to procure a Broomfield water treatment plant, installed a raw water pipeline, and construction of an offsite Woman Creek Reservoir and various on-site water management projects.

FY 1995 Accomplishments (Waste Operations)

- Completed and submitted the Proposed Site Treatment Plan on March 30, 1995, to the State of Colorado. Completed negotiation of the Mixed Low Level Waste Compliance Order with the State of Colorado.
- Disposed 480 yd3 of LLW at Hanford and NTS. Disposed nearly 400 yd3 of Land Disposal Restriction (LDR) compliant Mixed-LLW at a commercial disposal facility.
- Completed the Sewage Treatment Plant Phase I Sludge Drying System Upgrade and began construction for Phase II Upgrade.
- Commenced operations of the 25,000 square-foot Centralized Waste Storage Facility for newly generated Mixed-LLW in February 1995.
- Completed design and initiated construction of the New Sanitary landfill.

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III. Performance Summary - Rocky Flats (Continued)

FY 1995 Accomplishments (Waste Operations) (Continued)

- Completed NTS waste generator audit, which approved two new LLW streams for disposal. Treated approximately 10,000,000 gallons of waste water. Disposed of 105 M3 of backlog non-radioactive hazardous waste.

FY 1995 Accomplishments (Site Stabilization)

- Continued Productivity Improvement program for Surveillance and Maintenance Activities saving $6 million by reducing the number of surveillance through administrative changes and by streamlining maintenance activities.
- Savings of $5 million in Radioactivity Improvements were achieved by using more efficient technologies and improving process and procedural efficiencies to manage residues.
- Initiated 55-gallon residue drum venting program to vent a total of 2,645 drums; 2,045 drums vented in FY 1995.
- Initiated inorganic repackaging program to repackage a total of 700 inorganic residue drums by end of FY 2002. Repackaged 5 drums in FY 1995.
- Prepared 9 vaults and 38 gloveboxes for Resource Conservation and Recovery Act permitting and prepared unit closure list, standards and plans for 43 RCRA closure units as required by Judicial Order.
- Initiated Conceptual Design Development and National Environmental Policy Act analysis for residue stabilization program in preparation for line item construction project.
- Continued solid residue sampling, characterization, storage, and management activities.
- Completed environmental assessment and initiated thermal stabilization of plutonium materials for improved safe storage of material.
- Completed stabilization of 385, out of a total of approximately 1,025 bottles of plutonium solutions (approximately 3,800 liters).
- Completed the NEPA analysis for Phase II liquid stabilization activities, which include precipitation and solidification of approximately 26,000 liters of plutonium solutions in tanks and piping in Buildings 371 and 771 to support Phase II activities.
- Continued preparation of systems and equipment in Buildings 371 and 771 to support Phase II activities.
- Initiated building preparations in Building 886 to support draining and down-blending of highly enriched uranium solutions (2,700 liters in eight tanks). Program to be completed by December 1996.
- Stabilized 24 of approximately 63 kilograms of reactive plutonium oxide.
- Initiated repackaging of plutonium metal and oxide in direct contact with plastic, 137 of 222 items completed.
- Initiated sampling of plutonium in proximity to plastic for hazard assessment, 172 of 221 items sampled.
- Completed identification of Rocky Flats facilities that can be safely taken out-of-service.
- Continued payments to the State of Colorado for the Agreement in Principle.
- Improvements in cost reporting, management of computer systems and process improvement team enhancements to site operations have saved $3 million through productivity improvements.
- Completed the Environmental Assessment and initiated the consolidation of special nuclear material into Building 371.
- Initiated site-wide Environmental Impact Statement (EIS) preparation.

III. Performance Summary - Rocky Flats (Continued)

FY 1995 Accomplishments (Site Stabilization) Continued

- Management efficiencies in reducing procedural requirements and more effective and efficient training programs have achieved a savings of $3 million in productivity improvements in the site Landlord program.
- Met goals of the contract reform initiative by contracting an integrating contractor and subcontractors in place of the standard Management and Operating contractor at the site.
- Transferred plutonium pit surveillance program to the Los Alamos National Laboratory.
- Completed transfer of non-nuclear production to Kansas City.
- Transfer of facilities due to mission change from defense-related activities to Environmental Management activities.

FY 1996 Accomplishments (To Date and Planned) Environmental Restoration

- Continue operation of the OU 1 (881 Hillside) ground water treatment IM/IRA; submit final remedial action plan and final CAD/ROD.
- Continue operation of the OU 2 (903 Pad, Mound, and East trenches) surface water IM/IRA addressing treatment of contaminated water and subsurface IM/IRA soil vapor extraction pilot; submit draft CMS/FS.
- Complete and submit Draft and Final CMS/FS report for OU 3 and develop CAD/ROD.
- Continue RCRA closure activities for the Solar Ponds (OU 4) maintain Interceptor Trench System and place Building 910 evaporators in long-term shutdown; conduct permitting activities for the new process area; continue repacking nonconforming waste; conduct inspections and maintenance activities.
- Complete and submit final Phase I RFI/RI report for OU 5 (Woman Creek).
- Continue site-wide characterization efforts including characterization of background surficial soils, seep flow measurement, geophysical logging aquifer testing, 3-dimensional computer modelling of hydrogeology, and monitoring of new and existing monitoring wells at reduced levels; continue management of the Rocky Flats Environmental Restoration Database and analytical support services.
- Complete Phase I RFI/RI report for OU 6 (Walnut Creek) and the final CMS/FS report; complete implementation of the Pond Water IM/IRA.
- Complete OU 7 (Present Landfill) Leachate Collection IM/IRA Decision Document and initiate remedial design tasks.
- Conduct IM/IRA monitoring activities in the Industrial Area.
- Continue site-wide activities aimed at providing technical and operations support, including data management, administrative record, public participation, environmental impact statement activities, risk assessment, and geological studies.
- Conduct D&D projects in Building 889.
- Excavate and treat contaminated soil from Trenches T3 and T4.
- Excavate four PCB hot spots.

FY 1996 Accomplishments (Waste Operations)

- Continue support for waste handling, record maintenance, and quality assurance.
- Clean six tanks and fill with closed-cell foam; treat all material removed from the tanks.

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III. Performance Summary - Rocky Flats (Continued)

FY 1996 Accomplishments (Waste Operations) (Continued)

- Continue Base Program: including waste minimization; recharacterization of backlog waste; storage of transuranic/transuranic-mixed waste (TRU/TRU-MW), Low-Level Waste/Mixed-LLW, hazardous and nonregulated solid waste; onsite treatment of 155,000 gallons of organic waste, approximately 10,000,000 gallons of Mixed-LLW aqueous waste, and approximately 400 gallons of miscellaneous waste; and offsite disposal of 1100 cubic meters of LLW, 1,948 cubic meters of Mixed-LLW (saltcrete to Envirocare), and over 800 drums of hazardous waste (to facilities); maintain vital safety system equipment in Buildings 374 and 774; complete all LDR treatment compliance activities as described in the site treatment plan (STP); repack 300 non-compliant containers, vent and aspirate 400 TRU waste containers; perform headspace gas sampling characterization of 200 TRU/TRM drums; obtain waste water treatment unit (WWTU) exemption for Building 374.
- Initiate Title I Design for one Mixed-LLW treatment system (Miscellaneous Waste) required by the FFCAct Compliance Order.
- Continue design of upgrades to the Building 374 Liquid Waste Treatment Systems.
- Complete construction for Phase II of the Sewage Treatment Plant Upgrades.
- Complete construction and operational testing of New Sanitary Landfill and transfer facility over to landlord for operation.

FY 1996 Accomplishments (Site Stabilization)

- Perform 150,000 surveillances and 125,000 maintenance and operations support activities annually to safely store and handle over 13,040 kilograms of plutonium in 15 former weapon component manufacturing facilities.
- Complete Operational Readiness Review to allow for restart of tank draining activities stopped in FY 1994.
- Drain three tanks in Building 771 and begin solidification of solutions.
- Complete preparation of systems and equipment in Buildings 371 and 771 to support Phase II activities.
- Complete Building 886 preparations, draining, and down-blending of uranium solutions (2,700 liters in eight tanks). Ship solutions off-site for conversion to a solid.
- Accelerate the treatment of 1,056 cubic yards of residues in over 7,000 containers and external tank systems.
- Thermally stabilize the remaining 39 of 63 kilograms of reactive plutonium oxide in October 1996.
- Complete repackaging of remaining 85 of 221 items of plutonium metal and oxide indirect contact with plastic in November 1995.
- Complete sampling remaining 49 of 212 items of plutonium in proximity to plastic in September 1995.
- Initiate and complete repackaging of 1,602 items of plutonium metal and oxide in proximity to plastic in October 1996.
- Continue consolidation of special nuclear materials. Remove plutonium and oxide from Building 991, the first of six buildings in December 1995. Remove plutonium metal and oxide (category I and II Special Nuclear Material) from Building 779 (second of six buildings) by September 1996.
- Complete drum venting program, venting remaining 600 55-gallon residue drums by March 1996.
- Repackage an additional 100 of the 700 inorganic drums to be repackaged for a total of 105 drums.
- Initiate closure of 21 mixed residue container storage units and completed closure of 10 units.

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III. Performance Summary - Rocky Flats (Continued)

FY 1996 Accomplishments (Site Stabilization) (Continued)

- Complete NEPA analysis for residue stabilization program.
- Continue solid residue sampling, characterization, storage, and management activities.
- Provide training; conduct of operations improvements; radiological technician support; criticality safety support; and occurrence reporting support.
- Conduct an Environmental Monitoring Program (over 72,000 samples) annually including Air, Surface/Ground water monitoring, Soil Sampling and Chemical Tracking.
- Initiate design for the Criticality Alarms and Plant Annunciation System project to replace the 45 year old communication system which is the backbone to Rocky Flats' plant-wide fire, security, and communication systems. When completed this system will save $5.4 million per year.
- Provide utilities and services for the Rocky Flats Environmental Technology Site. Begin construction for the Underground Storage Tank project to replace 22 tanks to comply with Resource Conservation and Recovery Act requirements and avoid penalties of $5,000 per tank/day.
- Continue construction on the Plant Fire/Security System Replacement project to provide for replacement of existing security alarm and fire alarm systems.
- Complete transfer of plutonium pit surveillance program to the Los Alamos National Laboratory in September 1996.

FY 1997 Planned Accomplishments (Environmental Restoration)

• Submit final CMS/FS report for OU2 (903 Pad, Mound, and East Trenches); submit draft and final proposed plan; complete accelerated removal activities to reduce onsite contamination	$ 10,863
• Submit final proposed plan and CAD/ROD for OU3 (Off-site Areas)	301
• Excavate and treat soil and transfer to pond closure cell for OU4 (Solar Ponds); continue treatment of contaminated water; maintain storage pads; begin construction of RCRA closure cap to contain onsite contamination	11,050
• Operation and maintenance of the leachate collection system for OU7 (Present Landfill) will be continued; the Phase I IM/IRA construction will begin to reduce potential contaminant migration	5,888
• Intrusive field work will begin in the Industrial Area; accelerated actions will continue	3,987
• Technical direction and integration tasks will continue, including ground water monitoring, data management, health and safety support etc	10,016
• Program/project management tasks will continue, including public participation, administrative record, budget planning and management	9,280
• Proper handling, storage, and disposal of waste will be provided, including operation and maintenance of decontamination facilities and the sitewide treatment facility	9,209
• Conduct required long-term S&M activities to ensure continued protection of human health and the environment	400
• RCRA disposal cell design and permitting activities will be completed	2,446
Subtotal FY 1997, Rocky Flats Plant - Environmental Restoration	$63,440

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III. Performance Summary - Rocky Flats (Continued)

FY 1997 Planned Accomplishments (Waste Operations)	
• Continue support for Maintenance and Surveillance of Buildings 374, 774, and 664 to maintain vital safety systems and meet health and safety standards, per RCRA requirements and nuclear safety rules	5,576
• Continue support for base program and operations to maintain safe storage of backlog and newly generated LLW, Mixed-LLW, and TRU, TRU and TRU-mixed waste assay and characterization, and liquid and solid waste processing activities; additional support required for management of waste resulting from stabilization of Plutonium residues, as required by DNFSB Recommendation 94-1	71,096
• Continue support for hazardous waste treatment and disposal to meet RCRA requirements, and increase support for LLW and Mixed-LLW certification and disposal to alleviate storage overcrowding problems and provide areas for storage of newly generated waste resulting from stabilization of Plutonium residues	10,360
• Continue funding for mixed waste treatment and compliance as required by the FFC Act and Compliance Order on consent with the State of Colorado including design activities for two on-site treatment systems, treatability studies, and document preparation and updates	8,734
• Continue support for the upgrades and improvements to the site's wastewater treatment systems to maintain capability for treatment of low-level and mixed low level aqueous wastes (approximately 10M-gallons annually) and sludges to meet LDR/RCRA standards	4,275
• Continue support for the capital upgrade of the Sewage Treatment plan to meet OSHA requirements and NPDES discharge standards	280
Subtotal, FY 1997 Rocky Flats, Waste Operations	100,321

FY 1997 Planned Accomplishments (Site Stabilization)	
• Perform over 251,000 annual limiting condition of operation, Vital Safety System, inspections and other required surveillances. Perform over 590 annual preventive, corrective, and equipment calibration maintenance work orders to assure the safety envelopes in the storage facilities at Rocky Flats	32,900
• Maintain the nuclear material facilities at Rocky Flats by performing over 13,000 preventive corrective, equipment calibration and environmental corrective action work packages. Perform over 9,500 annual surveillances, and provide health and safety, technical support, nuclear safety support, ad utilities to buildings 371, 707, 886, and 991	61,617
• Perform analytical services and maintain the analytical facilities which sample over 70,000 items per year for Liquid Stabilization, Thermal Stabilization, Residue Elimination, Environmental Monitoring, Waste Management, Waste Characterization, Environmental Restoration, and Worker Protection Programs. Maintain the analytical and nonnuclear production facilities by performing surveillance and maintenance activities and providing building support functions	24,060
• Perform 1,240 security system maintenance activities; 461 security system surveillance and tests; 635 fire system maintenance work orders; 1,100 Life Safety Disaster Warning maintenance work orders; and execute 207 system tests in over 150 Rocky Flats buildings annually to assure safeguarding of special nuclear material	12,900

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III. Performance Summary - Rocky Flats (Continued)

FY 1997 Planned Accomplishments (Site Stabilization) (Continued)

- Continue preparation of Building 371 for long term storage of plutonium by completing Safety Analysis Report and continuing building modifications (July 1997); preparation of special nuclear material for shipment offsite, and consolidation of special nuclear material 36,725
- Install Plutonium Stabilization and Packaging Processing Plot type in Building 707
- Complete stabilization of approximately 18,000 liters of plutonium solutions in Buildings 371 and 771 and off-site conversion of highly enriched uranium solutions to a solid form for storage 32,800
- Repackage an additional 100 of the 700 inorganic drums to be repackaged by 2002 for a total of 205 drums; close out remaining 11 of 21 mixed residue closure units 25,500
- Begin design of facilities necessary to provide interim storage of plutonium in compliance with the Defense Nuclear Safety Board Recommendation 94-3. 12,900
- Complete Titles I, II, and III design review and construction for pyrochemical salt stabilization, part of line item project; start up pyrochemical salt stabilization to begin the processing of approximately 16,000 kilograms of plutonium bearing salt residues with a stabilization completion date of December 1998; complete Title I and II design review for the ash stabilization project, as part of line item project) and continue solid residue sampling, characterization, storage, and management activities 31,820
- Provide funding for the Agreement in Principal with the State of Colorado, which provides for independent monitoring of environment around the site. Support all environmental compliance activities as required by the Clean Air Act, Clean Water Act, National Environmental Policy Act and DOE Orders, such as air and water monitoring, discharge of 150 millon gallons of water, preparation of chemical management reports, environmental dose assessments, dam inspection, technical support for site environmental activities, and maintenance of environmental monitoring equipment 17,190
- Maintain the site infrastructure including the roads, the steam plant, the water system, provide support for occupational safety and health on the site including the radiological protection program, nuclear safety program, health and safety program 28,724
- Continue line-item projects, which will save costs by reducing the cost of maintaining the site's 40 year old infrastructure and modernize security, fire, and electrical systems throughout the site 23,425

Subtotal FY 1997, Rocky Flats (Site Stabilization) ..... $ 340,561

Total FY 1997 Rocky Flats $504,322

Explanation of Funding Changes FY 1996 to FY 1997:

- Funding reduction is based on expected agreement with regulators on shifting site priorities to emphasize materials stabilization activities.

Major Issues:

- None.

SAVANNAH RIVER

I. Mission Supporting Goals and Objectives

The Savannah River Site (SRS) has produced nuclear materials, primarily tritium and plutonium, in support of national defense projects for over 40 years. The site is located in south-central South Carolina and is bordered on the southeastern side by the Savannah River. The closest major population centers are Aiken, South Carolina and Augusta, Georgia. The ER Program is responsible for all aspects of assessment and remediation of facilities and sites that are no longer a part of active operations. Its responsibilities include 420 inactive waste sites and groundwater units located throughout the 310 square mile site. There are currently over 100 waste sites specifically identified to be remediated.

ER activities are grouped into nine Waste Area Groups (WAGs). WAG 1, A/M Area is composed of the main administrative area for SRS and an area previously used to produce fuel and target assemblies. WAG 2, Central Shops Area is primarily used as a storage and warehouse area for various support items. WAG 3, Reactor Units, encompasses the area occupied by the five production nuclear reactors. WAG 4, General Separations Area, includes the primary separations operations located in F- and H-Areas. These facilities separated and processed plutonium, tritium, and uranium from irradiated assemblies. WAG 5, TNX and D-Area, include the central powerhouse and heavy water facilities and the Savannah River Technology Center, which houses applied research and development programs. WAG 6, Miscellaneous Units, include acid/caustic basins, rubble pits and piles, coal pile runoff basins, and chemicals, metals, and pesticide sites located throughout the site. WAG 7, Site Evaluation Units, includes the evaluation, assessment, of potentially contaminated sites and the remediation of those sites requiring remediation. Also included are surveillance and maintenance of all remedial action sites (excluding decommissioning facilities). WAG 8, Program Management, provides the ER Program's program management-level support activities, including program and project controls, public involvement, regulatory compliance, quality assurance, cost-estimating, and operations support. WAG 9, Decontamination and Decommissioning, includes all decommissioning activities for the program.

Primary on-site contaminants include various nuclides (particularly plutonium, tritium, and uranium), volatile organic compounds, heavy metals, and solvents. Legal drivers for activities conducted at SRS include RCRA, CERCLA, and the site FFA (August, 1993) and various settlement agreements.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 87,870	$ 76,684	$ 92,971	$+16,287	+22
Decontamination & Dismantlement	20,519	17,453	8,973	-8480	-49
Long-term S&M	1,507	1,619	1,954	+335	+21
Compliance Oversight	273	4,062	3,559	-503	-13
Total, Savannah River	$ 110,169	$ 99,818	$ 107,457	$ +7,639	+8

III. Performance Summary - Savannah River (Continued)

FY 1995 Accomplishments

- Continued construction of ground water treatment unit at the Savannah River Laboratory (SRL) in the 3/700 Area.
- Completed installation and initiate operation of the vapor extraction units in vadose zone of the 3/700 Area.
- Continued operation of pump and treat system in 3/700 Area.
- Completed remediation design at 3 waste sites (low level radioactive waste disposal facility, F/H Seepage Basin ground water, and sanitary landfill); continued design for the TNX ground water remediation.
- Completed remediation development and planning at 4 waste sites (burial ground complex, sanitary landfill ground water, gunsite 113, and tank 16); continue at 11 waste sites (mixed waste management facility groundwater, old F-Area seepage basin, L-Area oil/chemical basin, D and F Area, Central Shops, and Burma Road burning rubble pits, Silverton Road, M Area West, Gunsite 720, and Grace Road).
- Performed groundwater characterization at the A/M Area and L Reactor sites.
- Completed 4 site characterizations (Miscellaneous Chemical basins/metal burn pit, 631-6C Central Shops burning rubble pits, A Area rubble pit, and A Area burning/rubble pit); perform characterizations at 6 additional sites (RWBG solvent tanks, F/H retention basin, CMP pits, Coal Pile runoff basins, C Area Burning/Rubble pits, and Bingham pump outage pits).
- Completed site evaluations on 24 waste sites.
- Continued limited D&D support and organization of D&D transition activities.
- Provided post-closure management on closed waste sites.

FY 1996 Accomplishments (To Date and Planned)

- Complete construction of ground water treatment unit at SRL in the 3/700 Area and begin groundwater remediation operations.
- Continue operations of the vapor extraction units at the vadose zone of the 3/700 Area.
- Continue ground water remediation operations at the 3/700 Area.
- Initiate remediation construction at 4 waste sites (Southern Sector, low level radioactive waste disposal facility, F/H Seepage Basin ground water, and Sanitary Landfill ground water).
- Complete remediation design at the Southern Sector and Sanitary Landfill ground water waste sites; continue remediation design at the Burial Ground Complex, the F/H Inactive Sewer Line, and the TNX ground water waste sites.
- Complete remediation development and planning at the Old F Area Seepage Basin and the Sanitary Landfill; perform additional remediation development and planning at the mixed waste management facility and F and H Tank Farm ground water waste sites.
- Complete 3 site characterizations (RWBG Solvent Tanks, 108-4R Overflow Basin, and R Reactor Seepage Basin); perform additional site characterization work at the K Reactor Seepage Basin and the F/H Retention Basin.
- Complete two interim actions and begin 1 interim action.
- Complete site evaluations on 24 waste sites.

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III. Performance Summary - Savannah River (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)
- Continue limited D&D support and organization of D&D transition activities.
- Provide post-closure management on closed waste sites.
- Provide for technical support of the ER program; including FFA reimbursement and AIP.

FY 1997 Planned Accomplishments	
• Continued remediation construction at the low level radioactive waste disposal facility (installation of final closure cap system)	$ 17,000
• Complete construction of ground water remediation system at the F/H Seepage Basin ground water waste site	11,500
• Place interim native soil cover over old radioactive waste burial ground	15,300
• Construction, procurement, and operation of 5 remediation systems (mixed waste management system, A/M Area soil vapor extraction units, TNX ground water Hybrid remediation system, in-situ bioremediation ground water treatment system, and the southern sector VOC removal)	16,993
• Characterization and technology selection for the mixed waste management facility ground water, reactor basins, the separations basins, the L Area oil and chemical basin and SRL Seepage Basin	26,004
• Continue current surveillance, maintenance and other activities at C, P and R reactors	8,973
• Regulatory required well sampling and analysis, reporting, and permit document submittals associated with the A/M Area ground water remediation project	4,500
• Continued ecological sampling, analyses, regulatory interface and document submittals associated with the F/H ground water treatment project	3,400
• Post-closure management activities and remediation management support	987
• Provide assessment program management	2,800
Total FY 1997, Savannah River	$ 107,457

Explanation of Funding Changes FY 1996 to FY 1997:
- Planned increase in remediation activities to: emphasize results in the field and fulfill commitments between DOE and regulators (+$16.3M).

Major Issues:
- None.

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HEADQUARTERS

I. Mission Supporting Goals and Objectives

Activities managed through Headquarters include funding for the Government's contribution to the Uranium Enrichment Decontamination and Decommissioning Fund. PRP payment for Maxey Flats and technical support are included.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 183,101	$ 370,228	$ 385,455	$ 15,227	+4
Total, Headquarters	$ 183,101	$ 370,228	$ 385,455	$ 15,227	+4

III. Performance Summary

FY 1995 Accomplishments

- Provided technical support to ER in the areas of document review, program integration, and other crosscutting areas.
- Provided support for Hazardous Waste Remedial Action Project and Remedial Action Program Information Center, and other data systems.
- Provided Government contribution to the Uranium Enrichment Decontamination and Decommissioning Fund.
- Provided for review and analysis of health assessments done by the Agency for Toxic Substances and Disease Registry.

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III. Performance Summary - Headquarters (Continued)

FY 1996 Accomplishments (To Date and Planned)
- Provide technical support to the Office of Environmental Restoration in the areas of document review, program integration, and other crosscutting areas.
- Continue support of program management plans and procedures, management support systems, strategic planning, performance systems, cost/schedule studies, and National Academy of Sciences and Corps of Engineers activities.
- Provide Government contribution to the Uranium Enrichment Decontamination and Decommissioning Fund.
- Provide funding for partial PRP payment for Maxey Flats.

FY 1997 Planned Accomplishments

• Provide Government contribution to the Uranium Enrichment Decontamination and Decommissioning Fund	$ 376,648
• Provide support funding for partial PRP payment to Maxey Flats	8,000
• Provide technical support to the Office of Environmental Restoration	807
Total FY 1997, Headquarters	$ 385,455

Explanation of Funding Changes FY 1996 to FY 1997:
- Increase in Government contribution to D&D fund. $+27.0M
- Reduction in support service contracts. $-11.0M

Major Issues:
- None.

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DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Obligations in Thousands)

PROGRAM OBJECT CLASS SUMMARY

Environmental Restoration

Personnel Compensation:	FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997
25.4 Operation & Maintenance of Facilities	1,669,380	1,318,697	1,804,052	1,456,270	1,762,194
99.9 Total	$1,669,380	$1,318,697	$1,804,052	$1,456,270	$1,762,194

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENTAL MANAGEMENT
PROJECT DATA SHEETS

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Defense Environmental Restoration and Waste Management

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars).

1.	Title and location of project: Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded	
3a.	Date assessment phase initiated: 1st Qtr., FY 1987[a]	5. Previous cost estimate:	
3b.	Duration of assessment phase: 20 Years[a]	Total Estimated Cost (TEC): Total Project Cost (TPC):	See TPC $853,469
4a.	Date remediation phase starts: 2nd Qtr., FY 1989[a]	6. Current cost estimate: (through FY 2001)	
4b.	Date remediation phase ends: To be determined[a]	TEC: TPC:	See TPC $905,346[b]

7. Financial Schedule

Fiscal Year		Appropriations	Adjustments	Obligations	Costs
Previous Years	Defense	$ 363,994	$ 0	$ 363,994	$ 339,566
	Non-Defense	15,660	0	15,660	15,138
	Total	379,654	0	379,654	354,704
FY 1995	Defense	114,760	0	114,760	110,619
	Non-Defense	3,314	0	3,314	3,142
	Total	118,074	0	118,074	113,761
FY 1996	Defense	89,943	0	89,943	84,069
	Non-Defense	1,360	0	1,360	1,474
	Total	91,303	0	91,303	85,543

[a] See individual site descriptions for detail.

[b] Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

1. Title and location of project:	Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded			
7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	FY 1997 Defense	66,624	0	66,624	67,294
	Non-Defense	325	0	325	1,361
	Total	66,949	0	66,949	68,655
	FY 1998 Defense	62,341	0	62,341	62,878
	Non-Defense	282	0	282	200
	Total	62,623	0	62,623	63,078
	FY 1999 Defense	62,107	0	62,107	64,300
	Non-Defense	281	0	281	0
	Total	62,388	0	62,388	64,300
	FY 2000 Defense	62,003	0	62,003	68,891
	Non-Defense	281	0	281	0
	Total	62,284	0	62,284	68,891
	FY 2001 Defense	61,790	0	61,790	63,493
	Non-Defense	281	0	281	0
	Total	62,071	0	62,071	63,493
	Defense	$ 883,562	$ 0	$ 883,562	$ 861,110
	Non-Defense	21,784	0	21,784	21,315
	Total	$ 905,346	$ 0	$ 905,346	$ 882,425

1. Title and location of project:	Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded

8. Project Description, Justification and Scope

Presented below are brief descriptions of the remedial action (assessment/remediation) projects at the sites indicated. Detailed scope, milestones, cost estimates, etc., for specific projects are contained in the Environmental Restoration (ER) Activity Data Sheets.

Los Alamos National Laboratory (LANL) ER Project:

The ER Project at LANL identifies and cleans up sites where hazardous and/or radioactive wastes were disposed of in the past. Approximately 2,000 potential release sites, aggregated into five field units, are currently scheduled for corrective measures investigation in the ER Remedial Actions Program under the Hazardous and Solid Waste Amendments (HSWA) Module of LANL's Resource Conservation and Recovery Act (RCRA) operating permit. ER operable units are located throughout the Laboratory and adjacent areas and are remediated on an as-needed basis. The type, area, and volume of contamination will be determined through the site assessment process.

The portion of the project scope to be accomplished with the requested FY 1997 appropriation includes the following:

- Field units will provide phase reports to the regulatory authority related to sampling activities.
- Additionally, ten assessments and two remedial actions will be completed at Field Unit 1; seven assessment and two remedial actions will be completed at Field Unit 2; one assessment and two interim actions will be completed at Field Unit 3; two assessment and two remedial actions will be completed at Field Unit 4; three assessment and two remedial actions will be completed at Field Unit 5.

LANL Decontamination and Dismantlement (D&D) Project:

The LANL D&D Program is to conduct remedial activities on surplus facilities at sites that have been transitioned to the Office of Environmental Management. The D&D program maintains accepted facilities in a safe configuration until restoration activities can begin. The facilities in the D&D program continue to deteriorate (especially the high explosives contaminated buildings at TA-16) emphasizing the need for restoration. The work will be done according to and in compliance with DOE Order 5820.2A. Delays in the accomplishment of this remediation will result in eventual higher costs in the form of need for extended surveillance and maintenance and escalated costs. Delays will also impact ER activities by increasing costs and preventing the start of site restoration activities. Assessment activities will continue throughout most of the duration of the project, so that planning activities will be ongoing for one or more buildings while remediation efforts are progressing for others.

2126

1. Title and location of project:	Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

In 1997, the LANL D&D Program currently includes the assessment and decommissioning of the following facilities:

- Technical Area (TA) -21, DP West Site - This project encompasses buildings in which Pu-238, Pu-239, U-235 and U-238 were handled and the support buildings such as ventilation and filtration systems and storage buildings (16 buildings in total). The planning phase of this D&D project will include a plan for systematically decommissioning the DP-West Site. This type of strategy minimizes the need for bypassing or rerouting numerous utility systems. Some of the buildings are still in use but will be excessed in time to be included in the overall project. D&D activities are phased with the ER Program so that site remediation occurs after building removal.

- Complete TA-35 Phase Separator Pit Decommissioning. The project encompasses an underground structure of approximately 2,150 square feet that provided ventilation exhaust for the Los Alamos Molten Plutonium Reactor Facility and supporting structures, tanks, waste lines and ventilation ducting. The scope includes relocation of existing functioning ventilation equipment from support structure TA-35-7 and razing structure TA-35-7. The structure contains seven waste storage tanks and associated ducts and piping, as well as several thousand lead bricks (shielding) which are expected to be contaminated with radioactive and other hazardous materials.

This project will be completed in FY 1997 with the systems dismantlement of the structure, removal of underground lines and tanks, and waste disposal.

Sandia National Laboratories, New Mexico (SNL/NM) ER Program and D&D Program:

This project encompasses the assessment and remediation of inactive waste disposal and release sites at Albuquerque, Kauai Test Facility, Salton Sea Test Base, Edgewood (NM) Test Site, and other remote locations. As a result of six separate installation assessments and ongoing programs to identify potential waste disposal and release sites, 176 sites have been identified for further assessment and possible remediation. These sites have known or suspected releases of hazardous, radioactive or mixed waste. The ER Program, as administered by SNL/NM, is continuing its assessment activities and aggressively pursuing Voluntary Corrective Measures and No Further Actions. No remedial activities are anticipated at the multi-party sites and remote facilities.

2127

1. Title and location of project:	Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The D&D subproject involves the Sandia Engineering Reactor. This effort requires quarterly inspections for a number of years, until the final disposition of the facility can be determined. The funding for this project which was included in the above numbers is as follows: Prior Years - $93, FY 1994 - $86, FY 1995 - $34, FY 1996 - $98, FY 1997 - $102, FY 1998 - $106, FY 1999 - $110 and FY00 - $114.

Most of the Albuquerque sites will be assessed under the requirements of the HSWA portion of the RCRA permit, as administered by the Environmental Protection Agency (EPA). The balance of the sites, most of which are at other Sandia-operated locations, will be assessed under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requirements. The Chemical Waste Landfill is regulated by the New Mexico Environment Department and is governed by an approved closure plan.

Sandia National Laboratories, California (SNL/CA) ER Program:

The highest priority cleanup project at SNL/CA is the fuel oil spill where 59,000 gallons of diesel fuel were released by accident from an underground transfer pipe in 1975. A bioremediation pilot study is being performed prior to full-scale bioremediation. In FY 1997, the bioremediation pilot study will incorporate the continued field placement of injection and extraction wells. Completion of these activities is necessary for regulatory approval prior to full remediation. The estimated volume of contaminated soil is approximately 87,500 cubic yards; an estimated six million gallons of water will be treated, recycled, or disposed of to publicly-owned treatment works.

The other potential major remediation site is the Navy Landfill site where the Navy deposited construction and other debris during the 1940's and 1950's. This landfill contains an estimated 90,000 cubic yards of soil, concrete, and other debris. In November 1994, the California Regional Water Quality Control Board (RWQCB) directed SNL to a prepare closure plan.

Ground water monitoring will continue and the ground water characterization report will be completed, remedial design will be developed, California Regional Water Quality Control Board approval of design will need to be obtained, National Environmental Policy Act documentation as directed will be completed, and remedial action will begin. SNL/CA will implement remedial design and complete closure of the Navy Landfill.

Remedial Action at SNL/CA is required by the California RWQCB Orders 88-142 and 89-184, and the California Solid Waste Water Quality Assessment Test, Tier IV. Restoration of the contaminated sites is also required under RCRA/CERCLA, other California codes, and DOE Orders. Failure to complete the remedial actions would result in degradation of the environment and possible health risk increase.

1. Title and location of project:	Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Albuquerque Operations Office (DOE-AL), Environmental Restoration Division:

This task consists of technical support activities necessary to assist the DOE-AL ER Division in managing and coordinating the ER efforts at LANL, SNL/NM, SNL/CA, and the Inhalation Toxicology Research Institute (ITRI). The activities include: assist with planning, preparation and integration of Activity Data Sheets, assist with the preparation of the annual congressional budget for the ER Program; manage and implement ER Program assessment activities; perform quality assurance/quality control (QA/QC) for the ER Program activities at DOE-AL national laboratories; and assist with the development, integration, and analysis of a technical, cost, schedule, tracking and reporting system and progress tracking system.

Activity during FY 1997 will include assistance with preparation of the FY 1999 ER congressional budget, continuation of management and implementation of ER Program assessment activities, continuation of QA/QC activities, revalidation of baseline cost estimates, and assistance with maintenance of an automated project management system.

Also included in this activity is funding for the South Valley Superfund site. The South Valley Superfund site is the former location of a facility owned by the Atomic Energy Commission and operated by ACF Industries from 1951 to 1967. In 1967, the U.S. Air Force (USAF) took possession of the facility which was operated by General Electric (GE) to produce jet engines. GE purchased the facility in 1984 and is the current owner.

The ground water is approximately eight to ten feet below the surface at the South Valley site and in 1980 the San Jose 6, an Albuquerque municipal well, was closed due to solvent contamination in the vicinity of the well. Seven independent investigations were negotiated by EPA with various entities. All investigations found contamination in ground water under respective properties.

In September 1988, EPA signed Records of Decision (RODs) for cleanup of five operable units. DOE, USAF and GE were named in December 1988 as the potentially responsible parties (PRPs) for two operable units; the GE property (Plant 83) and the San Jose property. The ROD called for additional studies, well abandonment, and 30 years of monitoring.

The remedy at the facility consists of additional studies, vapor extraction of solvents from the unsaturated zone, and pumping and treatment of the contaminated ground water in the shallow and deep aquifers. The remedy at the contaminated municipal well calls for additional studies, well abandonment, and 30 years of monitoring. However, the monitoring program for the municipal well field will be combined with the Plant 83 monitoring so only one monitoring program will exist.

GE is currently implementing remedial actions, and the USAF and DOE pay approximately 91% of the total costs.

1. Title and location of project:	Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

During FY 1997, for the South Valley Plant 83 operable unit, a pump and treat system for contamination in a shallow ground water aquifer will continue to operate. Construction for the deep zone treatment system began in FY 1995. Operation will begin in FY 1996.

If ongoing technical support activities are not funded as scheduled, the DOE-AL ER Program will risk not being in compliance with regulatory agreements which include RCRA 3008(h) Compliance Orders, HSWA Permits, and State of California RWQCB Order 88-142, and the New Mexico Water Quality Control Commission Regulations Discharge Plan. DOE would be subject to possible civil and criminal penalties applicable to these regulatory agreements. Lack of funding would also result in failure to prepare cost estimates and schedule baselines and to track and report costs and milestones.

South Valley:

The Department of Energy is a PRP in two RODs for this site. The RODs obligate DOE to pay for cleanup of the sites, but designate the current site owner as the party responsible for implementing the cleanup measures. DOE has no direct control over the remediation process. South Valley was placed on the EPAs National Priorities List in 1983 because of fear of Volatile Organic Compound (VOC) contamination of the city of Albuquerque municipal wells in South Valley.

Principle remaining contaminant problems are VOC contamination in a shallow aquifer that extends under a neighborhood, and in a deeper ground water aquifer used by the city for municipal water.

If funding can not be acquired, DOE will be in breach of its agreement with the current site owner and may be sued.

ITRI Environmental Restoration Program:

Assessment activities were performed to fully examine the extent of soil and/or ground water contamination resulting from past activities. The assessment included analysis of sewage lagoons, ground water, and soil to determine extent and level of contamination. Data was analyzed and a Remedial Action Plan was written which described alternatives to achieve regulatory compliance and protect public health. Remediation is being performed to clean up soil and/or ground water contamination to the extent necessary to meet regulatory compliance requirements. Activities include interim measures (soil venting), remedial design, removal of pond structures, closure of the lagoons, and health physics monitoring during remedial action.

Seven underground storage tanks and 2,000 linear feet of underground pipeline have been removed along with 3000 cubic yards of contaminated soil from the diesel oil release/spill site.

2130

1. Title and location of project:	Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded

ITRI Environmental Restoration Program: (Continued)

There were five spill areas involved and only one area continues to be cleaned up using a soil venting system (Area 2). It is anticipated that all cleanup activities will be completed in FY 1996.

At the hot pond site, 80 drums of waste have already been shipped prior to remediation. With regards to the hot ponds, 580 lineal feet of steel frames and 400 cubic yards of hot pond concrete will be shipped as low specific activity waste to the Envirocare Site, Utah. An additional 56 cubic yards of "apron" concrete may be clean enough to ship to a landfill. During the remediation phase, and soil which is a "hot spot," estimated at 200 cubic yards of contaminated soil, has been packed to be shipped to Envirocare, Utah. Two small metal structures, approximately 12 feet by 15 feet and 15 feet by 30 feet, were removed, as well as approximately 1,224 lineal feet of fencing. These may be reused or disposed of depending on how clear they are.

In FY 1995, the remediation of the diesel oil spill was complete as well as the hot ponds. Remediation of nitrates in the ground water is being negotiated.

During the first quarter of FY 1996, remediation of the Sanitary Lagoons was completed. Transfer of lagoon sludge contaminated with 137-Cesium and 90 Strontium to Envirocare, Utah will be completed in FY 1996.

The purpose of this project is to treat/remediate soil and ground water contamination to the extent necessary to protect present and future public health and to meet both State and Federal regulatory compliance requirements. Regulatory drivers include 40 CFR 141.3-11,280.66-71; New Mexico Water Quality Act, 3-103A; New Mexico Underground Storage Tank Regulation #1205; DOE 5400.1,.5.3,.5c(2), and 5820.2A-4a,b.

The scope of the project activities includes assessment planning, field assessment, interim measures, remedial planning/design, site remediation, and final reporting. Initial assessment activity began in FY 1991 and remedial activity will be completed by FY 1996. Delays in the project could result in additional migration of pollutants to soil/ground water, State Notice of Violation, or potential $5,000 per day State penalty.

2131

1. Title and location of project:	Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded

9. Method of Performance

LANL ER: The ER Remedial Action Program will be implemented using Laboratory staff and a mixture of subcontractors (e.g., analytical chemistry, field investigation, and architectural engineering).

LANL D&D: LANL D&D staff will provide project management and oversight. Laboratory staff will provide, on an "as needed basis", health, safety, and environmental services (e.g., health physics monitoring, industrial hygiene, safety, criticality, and engineering). Subcontractor will provide project management, information services, analytical chemistry, and field investigations. LANL's maintenance support contractor will assist on field assessment activities and perform actual remedial work under a cost-plus fixed fee contract on an "as needed basis" unless scope of work is outside its experience and warrants competitive bidding.

SNL/NM: Two general types of service contracts are used in this program, the task order and on-site contracts. Task order contracts are awarded to companies which respond with professional services when tasks are assigned. On-site contracts are awarded to companies which provide personnel to work on-site, for a specified period. Additionally, contracts for a specific service or item may be written.

SNL/CA: Contracts for this program are usually fixed-price or time and materials.

Environmental Restoration Division: The Project Office will utilize the Technical Support Office from LANL, GEOTECH, and other contractor support as necessary for ER Program support. The South Valley activities will be performed by GE with DOE (as a PRP) reimbursing 43.2% of the cost.

ITRI: ITRI will be subcontracting individual work packages for assessment (such as tank removals and monitoring well installations) and remediation efforts. The program management portion of the work is also subcontracted.

10. Schedule of Project Funding and Other Related Funding Requirements

a. Subproject Summary Level	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
1. Remedial Action	$ 361,024	$ 109,444	$ 85,503	$ 61,347	$ 213,178	$ 830,496
2. Decontamination & Dismantlement	18,630	8,630	5,800	5,602	36,188	74,850
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	0	0	0	0	0
b. Contingency	0	0	0	0	0	0
Total	$ 379,654	$ 118,074	$ 91,303	$ 66,949	$ 249,366	$ 905,346

2132

1. Title and location of project:	Albuquerque Laboratory Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.2 2b. Operating Expense Funded

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Albuquerque Production Environmental Restoration Project Various Locations	2a. Project No. D-1.4.3	
		2b. Operating Expense Funded	
3a.	Date assessment phase initiated: 1st Qtr., FY 1978[a]	5. Previous cost estimate:	
3b.	Duration of assessment phase: 21 Years[a]	Total Estimated Cost (TEC):	See TPC
		Total Project Cost (TPC):	$735,855
4a.	Date remediation phase starts: 1st Qtr., FY 1978[a]	6. Current cost estimate: (through FY 2001)	
4b.	Date remediation phase ends: 4th Qtr., FY 2019[a]	TEC:	See TPC
		TPC:	$500,349[b]

7. Financial Schedule

Fiscal Year		Appropriations	Adjustments	Obligations	Costs
Previous Years	Defense	$ 359,447	$ 0	$ 359,447	$ 359,447
	Non-Defense	21,446	0	21,446	21,446
	Total	380,893	0	$ 380,893	380,893
FY 1995	Defense	24,695	0	24,695	24,695
	Non-Defense	0	0	0	0
	Total	24,695	0	24,695	24,695

[a]See individual site descriptions for detail.

[b]Current cost estimate reflects appropriated dollars and FY 1996-2001 estimate.

1. Title and location of project:	Albuquerque Production Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.3 2b. Operating Expense Funded			
7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	FY 1996 Defense	$ 22,141	$ 0	$ 22,141	$ 22,141
	Non-Defense	0	0	0	0
	Total	22,141	0	22,141	22,141
				0	
	FY 1997 Defense	16,239	0	16,239	16,239
	Non-Defense	0	0	0	0
	Total	16,239	0	16,239	16,239
	FY 1998 Defense	14,200	0	14,200	14,200
	Non-Defense	0	0	0	0
	Total	14,200	0	14,200	14,200
	FY 1999 Defense	14,118	0	14,118	14,118
	Non-Defense	0	0	0	0
	Total	14,118	0	14,118	14,118
	FY 2000 Defense	14,069	0	14,069	14,069
	Non-Defense	0	0	0	0
	Total	14,069	0	14,069	14,069
	FY 2001 Defense	13,994	0	13,994	13,994
	Non-Defense	0	0	0	0
	Total	13,994	0	13,994	13,994
	Defense	478,903	0	478,903	478,903
	Non-Defense	21,446	0	21,446	21,446
	Total	$500,349	0	$500,349	$500,349

1. Title and location of project:	Albuquerque Production Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.3 2b. Operating Expense Funded

8. Project Description, Justification and Scope

Kansas City Plant (KCP) Environmental Restoration Program:

Forty-one inactive waste sites are identified at the KCP installation, twenty-seven of which are subject to ER action. The primary contaminants at the KCP are polychlorinated biphenyls and chlorinated solvents. The most immediate risk at the KCP is from three plumes of ground water contaminated with low levels of chlorinated solvents. Ground water from these plumes is currently being pumped to a treatment system. Without this treatment, contaminated ground water would migrate offsite into the Blue River, which is adjacent to the plant. Assessment and remediation activities at the KCP are required to comply with a RCRA 3008 (h) Order of Consent, signed June 23, 1989. Assessment activities include the performance of RCRA Facility Investigations to confirm the presence or absence of potential contamination sources and to evaluate environmental pathways at SWMUs. Corrective Measures Studies (CMSs) are performed to assess alternative technologies to eliminate or control the contamination. Remediation activities are performed to implement the remedial measures selected as a result of the CMSs; remedial design costs are also included in this activity. There are currently ten different projects in various phases of assessment or remediation at the KCP.

The following activities are scheduled to be performed in FY 1997:

- Remediation will continue on the Trichloroethylene Still Area, Outfall 001/Northeast Area, Department 26, Department 27 Inside, and Ground Water Treatment and Monitoring projects.
- Interim measures activities will continue on the Plating Building and Manpower Utilization Report System projects.

In addition, program management and National Environmental Policy Act activities will continue. These activities include regulatory deliverable coordination and support, baseline management, budgeting and funds management, audit/validation/review support, and performance reporting.

Pantex Plant Environmental Restoration Program:

Remedial Action Subprojects:

Assessment and remediation is presently being conducted under the Plant's RCRA permit. In 1994, Pantex was added to EPA's National Priorities List, so future activities will be subject to requirements of CERCLA. The process of defining and negotiating the transition between RCRA and CERCLA is underway.

ER program objectives include having 95% of the 144 SWMUs closed by FY 1997 and to have the remaining SWMUs in remediation by FY 2000. Remediation of sites at Pantex Plant by the year 2000 meets the EM program Small Sites Initiative as well as the State of Texas "Clean Texas 2000" initiative.

2136

1. Title and location of project:	Albuquerque Production Environmental Restoration Project Various Locations	2a. Project No. D/ND-1.4.3 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Albuquerque Operations Office, Environmental Restoration Division:

This task consists of program support activities necessary to assist the Albuquerque Operations Office ER Division in managing and coordinating the ER effort at the KCP, and Pantex Plant. The activities included are: assist with planning, preparation and integration of ER Program ADSs, and other planning documents; assist with preparation of the annual congressional budget for the ER Program; manage and implement ER Program assessment activities; perform Quality Assurance/Quality Control (QA/QC) for ER Program activities at DOE-AL production plants; and, assist with the development, integration, and analysis of a technical, cost, schedule, tracking and reporting system, and progress tracking system.

9. Method of Performance

Activities during FY 1997 will include development of the FY 1999 ADSs, assistance with the preparation of the FY 1999 ER budget, continuation of management and implementation of ER Program assessment activities, continuation of QA/QC activities, revalidation of baseline cost estimates, and assistance with maintenance of automated project management system. Funding for Agreements-in-Principle (AIPs) with the States of Texas, and Missouri is also included, as is funding for the innovative treatment remediation demonstration project.

If support activities are not funded as scheduled, the DOE-AL ER Program will risk not being in compliance with regulatory agreements which include a CERCLA 120 Federal Facility Agreement, RCRA 3008(h) Compliance Orders, and HSWA Permits. DOE would be subject to possible civil and criminal penalties applicable to these regulatory agreements. Lack of funding will also result in failure to prepare ADSs, cost estimates, and schedule baselines, and to track and report costs and milestones. Lack of funding for AIPs with States will violate Secretarial commitment and result in damage to relationships developed between DOE and the States.

KCP: Design and inspection will be performed under KCP negotiated Architect-Engineer contracts. Construction will be by fixed-price contract awarded after competitive proposals and administered by the KCP.

Pantex Plant: The remediation activities will be performed by an outside construction contractor operating under a fixed-price, lump-sum contract and will be administered by the U.S. Army Corps of Engineers (operating under an Interagency Agreement with the Department of Energy, Amarillo Area Office). Remediation activities are also performed by the M&O (Mason & Hanger-Silas Mason Co., Inc.) and its subcontractor (Battelle Memorial Institute - Pantex).

Environmental Restoration Division: The project will utilize the Technical Support Office from the Los Alamos National Laboratory and other subcontractor support as necessary for Program Support.

2137

1. Title and location of project: Albuquerque Production Environmental Restoration Project, Various Locations

2a. Project No. D/ND-1.4.3

2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 379,263	$ 23,347	$ 21,488	$ 14,510	$ 51,204	$ 489,812
2. Decontamination & Dismantlement	1,630	0	0	0	0	1,630
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	1,348	653	1,729	5,177	8,907
b. Contingency	0	0	0	0	0	0
Total	$ 380,893	$ 24,695	$ 22,141	$ 16,239	$ 56,381	$ 500,349

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No: D/ND-1.4.17	
		2b. Operating Expense Funded	
3a.	Date assessment phase initiated: 1st Qtr. FY 1957[a]	5. Previous cost estimate:	
		Total Estimated Cost (TEC):	See TPC
3b.	Duration of assessment phase: 50 years	Total Project Cost (TPC):	$367,692
4a.	Date remediation phase starts: 2nd Qtr. FY 1986	6. Current cost estimate: (thru FY 2001)	
		TEC:	See TPC
4b.	Date remedation phase ends: 2nd Qtr. FY 2041	TPC:	$ 348,395[b]

7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	Previous Years Defense	$ 35,130	$ 0	$ 35,130	$ 30,867
	Non-Defense	93,907	0	93,907	83,431
	Total	129,037	0	$ 129,037	114,298
	FY 1995 Defense[c]	2,920	0	2,920	6,981
	Non-Defense	26,763	0	26,763	36,911
	Total	29,683	0	29,683	43,892

[a] Site A surveillance and maintenance (S&M) started in FY 1957 and will continue through FY 2001.

[b] Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

[c] Reactive Metals, Inc. (RMI) transferred to Ohio Operations Office in FY 1995.

2139

1. Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded			
7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	FY 1996 Defense	1,483	0	1,483	1,585
	Non-Defense	28,986	0	28,986	28,986
	Total	30,469	0	30,469	30,571
	FY 1997 Defense	1,103	0	1,103	1,203
	Non-Defense	32,855	0	32,855	32,855
	Total	33,958	0	33,958	34,058
	FY 1998 Defense	770	0	770	770
	Non-Defense	30,636	0	30,636	30,636
	Total	31,406	0	31,406	31,406
	FY 1999 Defense	770	0	770	770
	Non-Defense	30,533	0	30,533	30,533
	Total	31,303	0	31,303	31,303
	FY 2000 Defense	770	0	770	770
	Non-Defense	30,513	0	30,513	30,513
	Total	31,283	0	31,283	31,283
	FY 2001 Defense	770	0	770	770
	Non-Defense	30,486	0	30,486	30,486
	Total	31,256	0	31,256	31,256
	Defense	$ 43,716	$ 0	$ 43,716	$ 43,716
	Non-Defense	304,679	0	304,679	304,351
	Total	$ 348,395	$ 0	$ 348,395	$ 348,067

1.	Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded

8. Project Description, Justification and Scope

There are eight activities described in this section for environmental restoration: Ames Laboratory, Chicago-Prime, Brookhaven National Laboratory (BNL), Argonne National Laboratory-West (ANL-W), ANL-East (ANL-E), Princeton Plasma Physics Laboratory (PPPL), Program Management, and Agreements-in-Principle (AIPs). Each activity is described as follows:

A. AMES LABORATORY

Ames conducts research in materials and chemical sciences, and related research in material reliability and nondestructive evaluation. The major environmental concern is remediation of an inactive chemical waste disposal site.

UST Contamination Assessment/Remediation (ADS 5201):
In compliance with Iowa State statutes, Code of Iowa 455b.411.468, and the Iowa Administrative Code, Division 567, Chapter 135, "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks" the UST will remain in place. Annual ground water monitoring will continue for several years.

Ames Chemical Disposal Site Remedial Investigation/Feasibility Study (RI/FS) and Remedial Design/Remedial Action (RD/RA) (ADS 5202):
The purpose of the chemical disposal site project is to assess and remediate the contamination that remains at the site near the Iowa State University Applied Sciences Complex. The chemical disposal site was remediated during FY 1994 and FY 1995 when approximately 1,000 cubic meters of contents and adjacent contaminated soils from the nine pits were disposed offsite. Monitoring wells were installed around the site and a ground water investigation will conclude in FY 1997. These activities are being done to fulfill the requirements of the Iowa Administrative Code Section 567, Chapter 133, and the Code of Iowa 455B.411.468.

Program Management (ADS 5203):
The program management encompasses the management of Environmental Restoration projects and associated support activities. Program management includes the development of a program to coordinate responsibilities and interrelationships of the laboratory organizational units, gaining approval for the program and implementing it. During FY 1997, the Ames staff will continue program administration tasks including preparation of current year work plans, baselines, and related project management and control documentation.

2141

1. Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

B. CHICAGO-PRIME

A number of activities, that are not laboratory specific, are grouped under this category. Each is discussed in detail as follows:

Palos Forest Preserve Site A/Plot M:
Palos Forest Preserve Site A/Plot M is the site of the former CP-2 Reactor and the University of Chicago Metallurgical Laboratory, which was operated as part of the Manhattan Engineer District project between 1943 and 1954. Continued radiological and hazardous surveillance and monitoring is required at the site in order to comply with DOE Orders 5400.5, "Radiation Protection of the Public and the Environment," and 5400.4, "Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Requirements." Future environmental restoration activities include completion of the characterization of the site, and the remediation of suspect areas.

The characterization and interim action activities are/were being performed to reduce risk to the public, which has access to public park facilities in the forest preserve. These activities are to comply with DOE Orders 5400.4 and 5400.5; CERCLA Section 120; Resource Conservation and Recovery Act (RCRA) (40 CFR 262, 264, and 265); and Illinois regulations for borehole closures and installation of monitoring wells.

Site A/Plot M S&M and Remediation (ADS 8204 and 8207):
During FY 1995, two interim actions were completed. Several USTs were removed and approximately 20 existing monitoring wells/boreholes were plugged and abandoned. Surface hazards will be eliminated during FY 1997. Assessment activities will be completed in FY 1995 and the final remediation is expected to include a small amount of "hot spot" soil removal and continued monitoring. S&M activities will continue in and around the site.

2142

1. Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Hallam and Piqua S&M:
The Hallam and Piqua Nuclear Power Facilities were built and operated as a demonstration project by the Atomic Energy Commission (AEC). The Hallam facility, located in Nebraska, now contains entombed components from a thermal sodium-cooled graphite-moderated nuclear reactor. The Piqua Facility, located in Ohio, contains entombed nuclear reactor components from a 45.5 megawatt organically cooled and moderated reactor.

S&M activities at both of these facilities are required in order to comply with DOE Order 5820.2A and are required by a lease agreement with the Nebraska Department of Health (Hallam) or a contract between the AEC and the City of Piqua, and are performed to assure that no radioactivity is being released. Assessment reports detailing the sampling and analysis are published annually.

Hallam S&M (ADS 8202):
Routine environmental radiological S&M is conducted to ensure containment. During FY 1997, monitoring of static ground water levels as well as sampling and analysis of wells will occur; radiological survey of entombed reactor will be done; and the annual site environmental report will be prepared.

Piqua S&M (ADS 8203):
The technical scope includes ongoing evaluations, assessments, and S&M activities. During FY 1997, the annual evaluation and assessment will occur as well as required followup to any FY 1995 activities.

C. BROOKHAVEN NATIONAL LABORATORY

BNL is a multi-purpose research and development laboratory that directs scientific and technical efforts including low- and high-level energy physics, life sciences, and nuclear medicine research. The major environmental concern at BNL is characterization and remediation of soils and of the underlying sole-source aquifer. The work is being done under the requirements of the interagency agreement (IAG) (which became effective during May 1992) among the Environmental Protection Agency (EPA), the State of New York, and the Department of Energy and integrates RCRA and CERCLA cleanup requirements. Each of the five operable units (OUs) will undergo project sloping, RI/FS, Record of Decision (ROD), remedial design, remedial action, and monitoring.

Sitewide Activities (ADS 2302):
The scope includes sitewide activities necessary to implement remedial actions that apply to multiple OUs. Ground water model development, as well as modeling and analysis and monitoring will continue.

1. Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

OU I (ADS 2303):
OU I encompasses the southeastern quarter of BNL and consists of several areas of concern. The ROD will be completed. Capping of the former landfill will continue in FY 1997; design of the groundwater interim action will be completed and operation will begin.

OU II (ADS 2304):
OU II is located in the north central portion of BNL. Assessment at the Brookhaven Graphite Research Reactor (BGRR), Paint Shop, and Old Firehouse and will continue in FY 1997. The FS will be completed. The BGRR D&D subproject is expected to be initiated beyond FY 2000.

OU III (ADS 2305):
OU III encompasses most of BNL including sixteen areas of concern. The RI report will be completed. The draft ROD will be initiated.

OU IV (ADS 2306):
OU IV is located in the east central portion of BNL and includes two complete areas of concern and two partial areas. The RD/RA work plan will be completed at the Central Steam Facility in FY 1996 and RD/RA will continue in FY 1997. Construction of the designed remedy and startup will begin.

OU V (ADS 2307):
OU V encompasses the northeastern portion of BNL. The RI/FS report will be completed.

Program Management:
Program management support activities provide general programmatic supervision and support for the planning, assessment, remediation, and closure of all OUs and RAs as well as sitewide activities at BNL. All actions will comply with all prescribed legal, health, and public safety parameters.

Program Management (ADS 2300):
The activities will include preparation and weekly and monthly reports, development of revised baselines and ADSs, prepare current year work plans, development of quality assurance plans and manuals, and other requirements that are necessary to support the program.

D. ARGONNE NATIONAL LABORATORY-WEST

Waste Area Group 9 (WAG 9) is basically the administrative boundary of ANL-W within the Idaho National Engineering Laboratory (INEL).

2144

1. Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Remedial Action - WAG 9 Assessment (ADS 1702):
The work at ANL-W includes four OUs which are composed of solid waste management units (SWMUs). During FY 1997 RI/FS field work will be completed, the proposed plan and the ROD will be developed. Also during FY 1997 an Abandoned Industrial Waste System will be removed and one monitoring well will be installed. The purpose of the activities is to comply with the Federal Facility Agreement/Consent Order (FFA/CO) agreement among DOE, the State of Idaho, and EPA Region X, which was signed on December 9, 1991, to meet location, contaminant, and action-specific requirements imposed by statutes and regulations, and to implement guidance and agreements. Activities follow a phased approach with public involvement activities occurring throughout the process.

Program Management (ADS 1700):
The program management activities at ANL-W encompass the technical and financial support necessary to provide assistance to INEL FFA/CO WAG 9 and other environmental activities.

During FY 1997, evaluation of regulatory corrective actions for projects and activities under regulations will continue. In addition, program support for updating the WAG 9 baseline and current year baseline will be provided.

E. ARGONNE NATIONAL LABORATORY-EAST

ANL-E conducts research in a broad program of basic energy and related sciences and serves as an important engineering center for the study of nuclear and non-nuclear energy sources. The purpose of the Remedial Action Program at ANL-E is to investigate and remediate contaminated sites and facilities in compliance with DOE orders and Federal, State, and local regulation. The FY 1997 environmental activities will comply with the requirements of the anticipated RCRA Part B permit, which is scheduled to be issued by FY 1996 and will require that investigation and cleanup activities occur on schedule. Remedial Action activities will address the SWMUs, which require attention as a condition of the granting of the permit.

Remedial Support Activities (ADS 1432):
The sitewide hydrogeological baseline study will provide baseline data for characterization and remediation activities required under RCRA. The SWMUs assessment will characterize inactive SWMUs located across the facility. During FY 1996 closure of all abandoned wells will be completed. During FY 1997, the RCRA FI (RFI) work plan will be completed.

Solid Waste Storage/Disposal (ADS 1433):
The 800 Area landfill, the lime sludge removal, and the building 810 solvent disposal area are the sites as defined by RCRA. The projects focus on the characterization and remediation of the environment around these areas. Two interim actions were completed in FY 1994 and FY 1995 and RFI field work began in FY 1995. During FY 1996, the 800 Area RFI field work will be completed. In FY 1997, the interim measures assessment will also be completed and designs of remedial actions will be started as appropriate.

1. Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Mixed Waste Storage/Disposal Facilities (ADS 1434): The scope provides for the assessment, characterization, and remediation of 13 SWMUs, closure of two RCRA permitted hazardous waste treatment units, and radiological decontamination of inactive radioactive waste storage structures in the 317/319/ENE area. Two interim actions were completed in FY 1995; two interim actions will be completed in FY 1996 including an interim action to place a barrier to off-site contaminated ground water movement. In FY 1997, radiological survey of deep and north vaults will be completed and cleanup will begin.

Treatment Sites (ADS 1435):
The scope is to characterize former wastewater treatment sites, including the East Area, 570 Holding Pond, Sawmill Creek, 100 Area, and Outfall Areas. During FY 1997, no work will be performed.

D&D:
The scope of the activities at ANL-E includes all the related activities to support the D&D of previously used reactor facilities at the laboratory. These activities which are required in order to comply with DOE Order 5820.A and that reduce or prevent radioactive releases to the environment, consist of the remediation of all reactor facilities including the disassembly, packaging, and disposal of all materials that may have become activated or contaminated during facility operation, and decontamination of all facility surfaces with contamination levels in excess of allowable limits. Some of the facilities are being cleaned up at this time and others are scheduled for the planning and outyears.

Reactor Facilities D&D Projects (ADS 1437):
The scope of the work provides for the D&D of several idle reactor facilities at ANL-E. The work includes the disassembly, segregation, packaging, storage and disposal of contaminated materials, and the decontamination of contaminated surfaces. During FY 1996 and FY 1997, the CP-5 Reactor complex removal will continue and the Janus Reactor decontamination/dismantlement will be completed.

Support Facilities D&D Projects (ADS 1438):
The activities are for the D&D of Building 200 M-Wing Hot Cells, Building 212 Pu Glovebox Facility, Building 310 Surplus Retention Tank, Building 579 Waste Ion Exchange Facility, 60" Cyclotron, and Building 301 Hot Cells. During FY 1996, the Building 212 Glove Boxes and the Building 200 activities for the M-Wing Hot Cells will be completed and the buildings transferred to Landlord. In FY 1997, the Building 300 USTs removal will begin.

2146

1. Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Program Management (ADS 1439):
The program management activities include all those activities required to provide program level management tools, plans, documents, and support necessary to successfully complete the execution of the environmental restoration projects.

This activity includes development and operation of a project management control system; preparation of sitewide documents; coordinating development of project and program plans; and preparing for reviews and audits. The FY 1997 work will include preparation of current year work plans, budget documents, baselines, and project tracking and reporting.

F. PRINCETON PLASMA PHYSICS LABORATORY

PPPL conducts magnetic confinement plasma physics research and investigates the practical application of fusion power as an energy source. The primary environmental concern is the remedial investigation and assessment of ground water beneath the site. If appropriate, remedial actions may be necessary as a result of the investigation. This work is required under the Memorandum of Understanding between Princeton University and the New Jersey Department of Environmental Protection.

Ground Water Characterization/Remediation (ADS 3201):
The remedial actions at PPPL are to assess the site known as site C/D, evaluate the alternative remedial actions based on that assessment, determine the best alternative, and implement the alternative to ensure protection of human health and the environment. The purpose of the remediation activities is to comply with the New Jersey Spill and Control and Compensation Act, the states's interim cleanup standards for contaminated sites (USAC 7:26D), and any risk-based levels developed during the remedial investigation phase of the project. In FY 1997, the remedial action assessment report will be finalized and the ROD submitted to the regulators.

Soil Remediation (ADS 8208)
The remediation at PPL involves compensating Princeton University for remediation work at this site (known as site A/B). The terms of this compensation are in negotiation between DOE and Princeton University at this site where DOE conducted research in the past.

Program Management Support (ADS 3200):
This work includes providing administrative, budgeting, and scheduling services. Program management also includes strategic planning, project planning, project control and reporting, and DOE technical support. During FY 1997, the specific work will include preparation of Activity Data Sheets; preparation of the priority system; ongoing baseline activities; monthly reporting requirements; and preparation of current year work plan.

2147

1. Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

G. PROGRAM MANAGEMENT

Chicago Program Management Support (ADS 8200):
The scope of this activity includes development, implementation, and maintenance of the integrated CH program management system. The program/project management activities include the design and documentation of the project control system, the quality assurance program, the records management system, and support to the planning function as well as support for the preparation of planning documents, activity data sheets, records management, baseline development, quality assurance, and performance reporting. During FY 1997 all the activities identified above will be supported as necessary.

H. AGREEMENTS IN PRINCIPLE/ IAG (ADS 8201)

AIP provides oversight support funding to New York State for CERCLA oversight and sampling under CERCLA 120(f), at BNL. Specific activities to be performed at BNL are stipulated in the signed FFA and State grant. The regulatory drivers are CERCLA 120 (f), Federal Facilities - State and Local Participation, and FFA/IAG Parts XXIII and XXII.

9. Method of Performance

Ames Laboratory: The contract mechanisms for the activities at Ames are as follows: The UST monitoring activities and the long-term ground water monitoring program at the Chemical Disposal Site will be via subcontract to Ames; the characterization at the chemical disposal site are via subcontract by the Chicago Operations Office. Currently, all the contracts are planned to be cost-plus.

Chicago Prime:

Palos Forest Preserve Site A/Plot M: The prime contract between DOE and the contractor was a modification to the Formerly Utilized Sites Remedial Action Project contract between Oak Ridge and Bechtel and was terminated in FY 1995. Any needed remediation will be subcontracted by the Chicago Operations Office. Monitoring activities continue via subcontract to ANL-E.

Hallam and Piqua: Monitoring activities at the Hallam facility will be performed by Nebraska Department of Health. Monitoring activities at the Piqua facility will be performed by a CH laboratory contractor.

2148

1.	Title and location of project:	Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois	2a. Project No. D/ND-1.4.17 2b. Operating Expense Funded

9. Method of Performance (continued)

BNL: The prime responsibilities and contracting strategy for major activities associated with the projects are as follows:

- BNLs Office of Environmental Restoration will be responsible for (1) planning, estimating, and budget preparation; (2) scope of work for RI/FS work plans; (3) management and oversight; (4) proposed remedial action plan; (5) ROD; and (6) analysis of data generated during post-closure monitoring.
- Consulting contractor will be responsible for (1) RI/FS and Engineering Evaluation/Cost Analysis; and (2) remedial design. Competitively bid fixed-price contracts will be awarded for remedial and removal actions.
- Management and operating functions may be assigned to the BNL operations group depending on the remedy. Post-closure monitoring is likely to be managed as fixed-price competitive procurement.

ANL-W: ANL-W design services will be performed by an Architect/Engineering (A/E) firm under a negotiated, fixed-price contract. The construction will be performed by a construction contractor who will be selected by competitive bids using drawings and specifications to obtain a single, fixed-price construction contract. ANL-W will administer the design and construction contracts, and will provide engineering support services and construction inspection.

ANL-E: At ANL-E, remedial action planning will be done by ANL-E personnel with assistance from outside engineering firms. Field activities on all large projects will be contracted to A/E firms. Some small scale preliminary field investigations will be completed by ANL-E personnel. Engineering design and inspection will be performed by ANL-E engineering personnel aided by A/E firms. Project management functions will be provided by ANL-E staff, including oversight of all design and field activities.

PPPL: To the extent feasible, construction and procurement will be accomplished by a fixed-price contract, which will be awarded on the basis of competitive bids.

CH Program Management and Support Activities: CH program management technical support services will continue to be provided by the technical support contractor, mainly through a cost-plus-fixed-fee contract.

AIP Oversight: The funding for the oversight activities is accomplished through a grant from the DOE to the regulatory agencies.

2149

1. Title and location of project: Chicago (CH) Laboratories Environmental Restoration Project Argonne, Illinois

2a. Project No. D/ND-1.4.17

2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 85,857	$ 20,000	$ 25,152	$ 28,386	$ 99,860	$ 259,255
2. Decontamination & Dismantlement	42,582	9,649	5,283	5,242	24,188	86,944
3. Long-term S&M	0	34	34	30	0	98
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	598	0	0	300	1,200	2,098
b. Contingency	0	0	0	0	0	0
Total	$ 129,037	$ 29,683	$ 30,469	$ 33,958	$ 125,248	$ 348,395

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Idaho National Engineering Laboratory (INEL) Environmental Restoration Project Idaho Falls, ID	2a.	Project No. D-1.4.9
		2b.	Operating Expense Funded
3a.	Date assessment phase initiated: 1st Qtr. FY 1990	5.	Previous cost estimate:
			Total Estimated Cost (TEC): See TPC
3b.	Duration of assessment phase: 128 months		Total Project Cost (TPC): $931,244
4a.	Date remediation phase starts: 1st Qtr. FY 1992	6.	Current cost estimate: (through FY 2001)
			TEC: See TPC
4b.	Date remediation phase ends: 4th Qtr. FY 2019		TPC: $1,017,883*

7. Financial Schedule Defense Funded Only	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	Previous Years	$ 313,214	$ 0	$ 313,214	$ 289,356
	FY 1995	105,009	0	105,009	116,911
	FY 1996	93,965	0	93,965	96,621
	FY 1997	109,259	0	109,259	109,259
	FY 1998	99,626	0	99,626	107,626
	FY 1999	99,203	0	99,203	99,203
	FY 2000	98,997	0	98,997	98,997
	FY 2001	98,610	0	98,610	98,610

*Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

2151

1. Title and location of project:	INEL Environmental Restoration Project	2a. Project No. D-1.4.9
	Idaho Falls, Idaho	2b. Operating Expense Funded

8. Project Description, Justification and Scope

The purpose of the INEL Environmental Restoration Program (ERP) is to identify, assess, and remediate designated areas so that the INEL may be delisted from the Environmental Protection Agency (EPA) National Priorities List (NPL), and to decontaminate and dismantle (D&D) certain surplus facilities. The ERP also provides program management support to all management activities by the contractor and implements the requirements of the Federal Facility Agreement/Consent Order (FFA/CO).

Remedial Actions (RAs):
RAs consist of an assessment phase and a remedial phase, and are conducted in accordance with the provisions of the INEL FFA/CO, signed by EPA, the State of Idaho and DOE, in December 1991. During the assessment phase, all potential release sites will be characterized to determine the type and extent of any contamination. Depending on the assessed risk and urgency, interim actions may be taken to mitigate any risks to human health and the environment. Information gathered during the assessment phase will be used to develop remediation methods to be used during the remedial phase of the ERP. RAs are managed as Waste Area Groups (WAGs) defined in the FFA/CO and include WAGs 1-7 and 10, which are further divided into operable units (OUs). WAGs 8 and 9 are managed by other DOE organizations. A brief description of each of the WAGs follows:

WAG 1, Test Area North (TAN):
WAG 1 is divided into 10 OUs, which include underground storage tanks, pits, ponds, ditches, injection wells, soil sites, a sewage treatment plant, and a railroad turntable. Hazardous, radioactive, and mixed wastes exist at WAG 1. Possible contaminants include asbestos, hazardous containments (metals and organics), petroleum products, acids and bases, radioactive rubble and metal, laboratory bottles, and sanitary wastes.

Ground water contamination (trichloroethylene), in excess of drinking water standards, was initially identified in 1987 at the Test Area North (TAN) Technical Support Facility (TSF), and confirmed to have spread further into the Snake River Aquifer in 1989 and 1990. This contamination was a primary factor in EPA's listing of the INEL on the NPL in November 1989. In all, there are 94 potential release sites in WAG 1. The project includes installation and operation of the Ground Water Treatment System, designed as an interim action to reduce sources of ground water contamination and contain the plume of contamination at the TAN/TSF Injection Well site. The Record of Decision (ROD) for the Ground Water Remedial Action/Feasibility State, was submitted in FY 1995 and RA, which will include continuation of the treatment begun under the interim action, will commence in FY96. Work will also continue on the WAG comprehensive Remedial Investigation/Feasibility Study (RI/FS) and TSF VTank removal action.

2152

1. Title and location of project:	INEL Environmental Restoration Project	2a. Project No. D-1.4.9
	Idaho Falls, Idaho	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

WAG 2, Test Reactor Area (TRA):
WAG 2 is divided into 13 OUs. Possible contaminants include petroleum products; chemicals, including acids and polychlorinated biphenyls (PCBs); hot and warm radioactive wastes; and heavy metals. The comprehensive RI/FS is required to evaluate sites not previously addressed in the FFA/CO process and sites determined to require further evaluation based on decisions by the regulators. The project includes the completion of a major portion of the WAG 2 comprehensive RI/FS implementation phase and monitoring required by the RODs for the TRA Perched Water and the Interim Action ROD for the Warm Waste Pond. The WAG 2 comprehensive RI/FS is intended to address risks at any sites not addressed in previous investigations and the cumulative risk posed by all WAG 2 sites. The WAG 2 RI/FS will be in the implementation phase in FY 1996 which includes preparation of the draft RI/FS report, a primary FFA/CO document. Continue O&M operations at Warm Waste Pond.

WAG 3, Idaho Chemical Processing Plant (ICPP):
WAG 3 is divided into 13 OUs. Contamination include substances such as organic (including PCBs), asbestos, radionuclides, metals, corrosives, petroleum wastes, and mixed wastes. The primary area of concern is the high-level liquid waste tank farm area that has released high-level radioactive mixed waste and other contaminants (mentioned in Item #8) into the soil beneath the site. The current scope of the project includes Track 1 and Track 2 assessments and a comprehensive RI/FS to determine the level of risk associated with existing hazards. The comprehensive RI/FS will be implemented during FY96 and FY97 with final draft RI/FS ROD submitted in FY97. The extent of remediation activities will depend on the outcome of these assessment activities. Site surveillance and monitoring work will be performed to verify site integrity and contaminant migration rates.

WAG 4, Central Facilities Area (CFA):
This WAG is divided into 13 OUs. Known or potential contaminants include chemicals, solvents, PCBs, asbestos, unexploded ordnance, heavy metals, and construction debris.

Services for the entire INEL are headquartered at the CFA. Risks to be considered are primarily those due to ingestion or inhalation of surface contaminants at various sites. A "No Action" Final ROD was signed in January 1993 for the CFA Motor Pool Pond, which was an unlined evaporation pond formerly used to contain liquid wastes from parking areas for INEL fleet vehicle servicing operations.

Field sampling will be conducted and Track 2 assessments completed for two areas suspected of being contaminated with lead and for the CFA Sewage Plant, which contains low levels of radioactive contamination, primarily from laundry operations. Risk evaluations will be performed for these sites, and determinations made as to the next appropriate steps to take (i.e., no action, interim action, or RI/FS). Track 2 assessments will be initiated at a CFA pond, which is saturated with oil and the other contains mercury. A transformer yard and two oil spill areas are contaminated with PCBs. A removal action to cleanup mercury contamination soil and other debris from the CFA Calcine Pit was completed in FY 1995. In FY 1995 the ROD for the CFA Landfills II and III remediation was signed, with capping as the remedy. Remedial Action will be initiated at the Landfills in FY96.

2153

1. Title and location of project:	INEL Environmental Restoration Project	2a. Project No. D-1.4.9
	Idaho Falls, Idaho	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

WAG 5, Power Burst Facility/Auxiliary Reactor Area (PBF/ARA):
WAG 5 is divided into 13 OUs. Potential contaminants are petroleum products, radionuclides, heavy metals, sanitary waste, brine, and rubble.

Several nuclear test reactors were operated in the PBF/ARA areas since the late 1950s. One reactor is still operational, but in a standby mode, while all others have been removed. The buildings which housed the reactors and support facilities have undergone partial or complete D&D. Elevated concentrations of radionuclides and chromium were present in the evaporation pond, and volatile organic compounds (VOCs) and radionuclides were present in the Corrosive Waste Sump, presenting primarily inhalation and ingestion risks. Also of concern is the ARA II Stationary Low Power Reactor (SL-1) Burial Ground, a 4.6 acre area where approximately 80 cubic feet of low level radioactively-contaminated debris from a damaged reactor was buried (OU 5-05), and the Boiling Water Reactor Experiment (BORAX) I reactor burial ground, a 0.5 acre area where the damaged test reactor was buried after an intentional fast excursion experiment (OU 6-01). These two sites are being evaluated under a combined RI/FS. Remedial design/remedial action activities will commence in FY 1996.

An Interim Action ROD was signed in September 1992 and "hot spots" were removed at the Corrosive Waste Sump and Evaporation Pond Area (OU 5-13). A "No Action" ROD was signed for the ARA I Chemical Evaporation Pond area (OU 5-10). The interim action cleanup at the Corrosive Waste Sump and Evaporation Pond (OU 5-13) was completed in FY 1995. Final Remedial Action for the SL-11 BORAX I reactor burial grounds will be implemented during FY96 and FY97, following submittal of ROD in FY96.

WAG 7, Radioactive Waste Management Complex (RWMC):
WAG 7 is a 154-acre site (divided into 14 OUs) that was used since the early 1950s as a disposal site for solid, low-level, radioactive waste generated by INEL operations and other off-site operations, and transuranic (TRU) waste shipped from Rocky Flats. Wastes were buried in unlined pits, trenches, pods and soil vault rows. The RWMC includes the TRU Storage Area and the Subsurface Disposal Area (SDA). Known or suspected contaminants include acids, TRU and non-TRU radionuclides from stored wastes, radioactive and nonradioactive hazardous materials, and organic and inorganic compounds, including VOCs in the vadose zone (the subsurface region beginning at the surface and extending down to the top of the Snake River Plain Aquifer).

Five Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) RODs are planned in the remediation of the RWMC: Pad A (OU 7-12), containing over 3,000 plywood boxes and 20,000 metal drums, stacked on an asphalt pad; the Organic Contamination of the Vadose Zone (OCVZ); TRU Pits and Trenches (which includes non-TRU Pits and Trenches); Pit 9 (110,000 cubic feet of TRU contaminated waste in drums, sludges, boxes, etc.) and the WAG 7 Comprehensive ROD. Pad A is a limited final Action that recontoured the existing soil cap and now monitors the site. Continue Pad A post remediation O&M. OCVZ will requires of a Vapor Vacuum Extraction process to remediate VOCs in unsaturated soil and rock beneath the RWMC.

2154

1. Title and location of project:	INEL Environmental Restoration Project Idaho Falls, Idaho	2a. Project No. D-1.4.9 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The Pit 9 Proof of Process (POP) Test was completed in FY 1994. The POP and Limited Production Test (LPT) are designed to confirm that the technology and expertise exists, in the private sector, to cost effectively remediate buried, mixed, and TRU contaminated waste at Pit 9, prior to initiation of full scale remediation. Outyear scope includes the completion of the Pit 9 LPT and initiation of full scale remedial action in accordance with the Interim Action ROD. Additional work includes completion of the SDA contaminated Pits and Trenches RI/FS, the OCVZ Remedial Action, and routine monitoring of RWMC environmental media sites.

WAG 10, Miscellaneous Sites:
WAG 10 includes regional Snake River Plain Aquifer concerns related to the INEL that cannot otherwise be addressed on a WAG-specific basis and other surface disposal sites and ponds identified at the INEL that are not included in specific areas. The WAG consists of 12 specifically identified and five generally identified sites divided into seven OUs. Specific sites currently recognized as part of the WAG include the Liquid Corrosive Chemical Disposal Area located between WAGs 6 and 7, the Organic Moderated Reactor Experiment located between WAGs 4 and 5, and areas containing unexploded ordnance.

Information from all other WAGs will support the WAG 10 Comprehensive RI/FS and ROD, which is the last enforceable milestone for a ROD under the INEL FFA/CO (FY 2001). The project includes investigation of ordnance sites contained within the boundaries of the former Naval Proving Grounds. Radionuclide contaminated soil assessment of OU 10-06 RI/FS will be completed. Work conducted under WAG 10 scope also includes the development of computer modelling codes for ground water flow and contaminant transport and the establishment of a geologic/hydrologic database in support of the Snake River Plain Aquifer RI/FS. In addition, WAG 10 includes the assessment of radionuclide soil contamination, for which RI/FS activity is underway.

D&D:
D&D activities are primarily concerned with the safe caretaking of surplus nuclear facilities until decontamination for reuse or complete removal has occurred. Criteria for declaring a facility "surplus" include designation as such by the programmatic sponsor, the absence of an identified programmatic use for the facility, and radiological contamination of the facility. The primary D&D activities at the INEL are driven by the former U.S. Department of Energy, Idaho Operations Office (DOE-ID) Surplus Facilities Management Program and Defense Facility Decommissioning Program schedules for cleaning up contaminated surplus facilities. However, a few individual units are also covered by the FFA/CO. The primary D&D activities at the INEL are driven by DOE Order 520.2A, Radioactive Waste Management, Chapter 5.

The units described below are on the DOE-ID Surplus Facilities List and are scheduled to be decommissioned in accordance with DOE, Federal, and State regulations. D&D planning for these excess facilities encompasses assignment of a priority to each facility; radiological, chemical, and physical characterization; and decision analysis that guides the selection of preferred D&D alternatives.

2155

1. Title and location of project:	INEL Environmental Restoration Project	2a. Project No. D-1.4.9
	Idaho Falls, Idaho	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Through FY 1994, 35 facilities had been decontaminated and dismantled including several that have been returned to a natural condition in that all evidence of the facility has been removed. The remainder have had all contamination removed and the useful parts of the facilities returned to further service. D&D sites are listed below:

Army Re-entry Vehicle Facility Site (ARVFS):
ARVFS sodium-potassium (NaK) Resource Conservation and Recovery Act (RCRA) storage unit consisted of an earth-covered bunker. The bunker contains four containers of RCRA-regulated mixed waste high-level radioactively contaminated NaK liquid metal. This liquid metal is the coolant removed from the Experimental Breeder Reactor I. Transport of the ARVFS NaK waste to Argonne West for treatment occurred during August 1995. Treatment and disposal of the NAK is planned for FY96.

ARA-I:
ARA-I was used as a support facility for the other ARA facilities until the U.S. Army Reactor Program was phased out in 1970. The facilities were used to support other INEL programs and facilities until 1987, and have been deactivated and remain idle. D&D activities include the total dismantlement of Buildings 626, 627, and Area 729 Hot Waste Tank containing TRU waste, the underground utilities, and septic system. D&D will be initiated during FY96.

ARA-II:
ARA-II housed the Stationary Low Power Reactor No. 1, which was destroyed in a reactor accident that occurred during maintenance operations in 1961. D&D of this facility includes the total dismantlement of the three buildings (converted into offices and welding shops), D&D of underground utilities, and the demolition of SL-1 Reactor equipment (completed in FY 1993). Final D&D completion is anticipated in FY96.

ARA-III:
ARA-III was used to test gas-cooled reactors until 1966. It was then used as a laboratory for component and instrument testing. D&D activities include removal of the exhaust stack, hot-waste tank and lines, concrete, and miscellaneous items in the reactor buildings. In addition, contaminated soil areas will be remediated as required by INEL release criteria. D&D will continue during FY96.

Materials Test Reactor (MTR):
MTR is located at the TRA complex. MTR was a 40 megawatt-light water reactor that operated between 1952 and 1970. The MTR area contains 15 major buildings and structures. Deactivation characterization was completed in 1982 and additional characterization and D&D activities will require several years to complete.

2156

1. Title and location of project:	INEL Environmental Restoration Project Idaho Falls, Idaho	2a. Project No. D-1.4.9 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Central Facilities Area Hot Laundry (CFA-669):
CFA-669 was formerly used as a laundry for radioactive and non-radioactive contaminated clothing. D&D activities were started in 1993 and was completed in early 1995 with issuances of final reports.

Engineering Test Reactor (ETR):
The ETR was a 175 Megawatt pressurized light water test reactor located in the TRA that operated between 1957 and 1982. Late in the life of the facility, the Sodium Loop Safety Facility was operated as part of the test program. The ETR contains 11 major buildings and structures. Deactivation characterization was completed in 1982 and additional characterization and D&D activities will require several years to complete.

BORAX-V:
BORAX-V housed four separate experimental reactors, BORAX II through V, that have been idle since 1964. Partial D&D was conducted in FY 1979, FY 1984, FY 1987, FY 1989, and FY 1992. D&D activities include the total dismantlement, removal, and disposal of equipment and demolition of the foundation of the Reactor Buildings to below grade. An entombment alternative with limited decontamination is currently under consideration.

Loss-of-Fluid Test (LOFT) Facility:
The mobile test assembly was a part of the LOFT Facilities Ancillary Equipment. The LOFT was used in the 1970s for loss-of-coolant simulated reactor accidents. This D&D activity will dispose of ancillary equipment remaining from the LOFT program.

TAN 607 Decontamination Shop:
This area began operations in 1957 and was shut down in 1987. D&D completed in 1994. Facility ready for re-use.

TAN TSF:
The Technical Support Facilities consist of buildings, structures, pits, and equipment used to support various INEL programs at TAN. The D&D cannot be started until TAN facilities have been fully characterized. TAN 606 calibration well D&D completed in 1994. Facility ready for re-use.

Test Train Assembly Facility (TTAF):
TTAF is the MTR-603 Fuel Storage Canal and was used in support of the Thermal Fuels Behavior Program to build and disassemble nuclear fuel tested at the Power Burst Facility Reactor.

1. Title and location of project:	INEL Environmental Restoration Project	2a. Project No. D-1.4.9
	Idaho Falls, Idaho	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The MTR-603 canal, consisting of contaminated hardware and equipment in a fuel storage canal, requires D&D.

Chemical Processing Plant (CPP)-709 and -734 Service Waste Monitoring Stations:
The D&D activity for CPP-709 and -734 monitoring stations will include decontamination followed by equipment removal and disposal as low-level waste and landfill waste.

ICPP is a complex for fuel processing, fluidized-bed waste solidification, and general research and development. The following facilities within ICPP complex are partially or completely inactive and require decommissioning:

CPP-603 Fuel Receipt and Storage Facility (FRSF). The D&D activity for the CPP-603 FRSF will be preceded by FS and options analysis to identify the D&D alternatives for the FRSF. Upon completion of an ongoing fuel transfer activity (estimated completion in FY 1999) the FRSF will be turned over to D&D.

- Stored Fuel Exterior Waste Tank (SFE-20) System/CPP-740. SFE-20/CPP-740 consists of a tank (full of radioactive waste, possible mixed hazardous wastes), tank vault, access tunnel, pump pit, CPP-642 compressor building, and associated piping and instruments. The CPP-740 area (liquid wastes of unknown composition have been found) consists of two slurry settling facilities, two dry wells, and a valve box manhole.

- CPP-640 Headend Processing Systems. The CPP-640 facility housed two headend processing systems (ROVER and ELECTROLYTIC) used to recover uranium from graphite matrix and stainless steel clad spent nuclear fuels. The now inactive processing systems are radiologically contaminated and are planned for D&D.

- CPP-631 Off-gas Cell and the CPP-709 and -734 Service Waste Monitoring Stations. The inactive CPP-631 building was an off-gas cell as part of a discontinued dissolution system process for uranium recovery from spent nuclear fuel. The now empty building is radiologically contaminated and is planned for decontamination and in-place demolition. The inactive CPP-709 and -734 buildings housed systems used to monitor a service waste stream before its discharge to an injection well and later to percolation ponds. These facilities are obsolete or have been replaced and are planned for D&D. D&D will initiate in FY96.

- CPP-601 Fuel Processing Complex. CPP-601 is still in use for flushing and clean-out of its dissolution process systems. The facility after flushing and clean-out, will contain radiological and hazardous contamination and is planned for a phased shutdown followed by D&D.

2158

1. Title and location of project:	INEL Environmental Restoration Project Idaho Falls, Idaho	2a. Project No. D-1.4.9 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

- CPP-633 Waste Calcining Facility. CPP-633 was originally constructed as a technology demonstration plant used to calcine radioactive high-level liquid waste. After its replacement by the New Waste Calcining Facility (CPP-659), the WCF calcination process has not operated since 1981. The facility contains radiological and hazardous contamination and is planned for D&D.

- High-Level Liquid Waste Tank Farm. The Tank Farm is currently in use but is scheduled for phaseout. The first phase will deactivate five of eleven underground storage tanks housed in concrete vaults. The second phase will inactivate the remaining tanks after FY 2000. Planning for the D&D of the inactive tank farm is in the pre-conceptual stage.

Program Management Support:
Program management support activities ensure that remedial actions and D&D activities are accomplished efficiently and effectively through managerial and financial control. All activities included in this level are driven by CERCLA, RCRA, DOE Orders and the FFA/CO for the INEL. The FFA/CO is an agreement among DOE, EPA Region X, and the State of Idaho Department of Health and Welfare remediate waste sites at the INEL in accordance with CERCLA.

Program management support scope includes configuration and records management, data management, sample management, quality and compliance assurance, strategic planning, system planning and control, community and stakeholder relations, waste stream tracking and INEL D&D program support.

Compliance Oversight:
Compliance oversight includes performance by the State of Idaho under the FFA/CO and provides for the Shoshone-Bannock Tribes to be among the organizations that assure the appropriate level of environmental compliance is performed within and near the INEL.

9. Method of Performance

The INEL program is implemented primarily by a Management and Operating (M&O) contractor, the United States Geological Service, a university research foundation, and other technical support contractors. The M&O contractor performs activities associated with program formulation, program execution, program evaluation,and quality assurance.

2159

1. Title and location of project: INEL Environmental Restoration Project — 2a. Project No. D-1.4.9

Idaho Falls, Idaho — 2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 287,737	$ 99,477	$ 87,389	$ 100,986	$ 321,363	$ 896,952
2. Decontamination & Dismantlement	22,925	3,897	4,676	5,913	50,644	88,055
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
6. Compliance Oversight	2,552	1,635	1,900	2,360	24,429	32,876
b. Contingency	0	0	0	0	0	0
Total	$ 313,214	$ 105,009	$ 93,965	$ 109,259	$ 396,436	$1,017,883

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

2160

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project:	Nevada Environmental Restoration Project Las Vegas, Nevada and Off-Site Locations	2a. Project No. D-1.4.1 2b. Operating Expense Funded
3a.	Date assessment phase initiated: 1st Qtr., FY 1988		5. Previous cost estimate: Total Estimated Cost (TEC): See TPC Total Project Cost (TPC): $321,205
3b.	Duration of assessment phase: Approx 324 months		
4a.	Date remediation phase starts: 2nd Qtr., FY 1993		6. Current cost estimate: (through FY 2001) TEC: See TPC TPC: $469,645*
4b.	Date remediation phase ends: Approx 319 months		

7. Financial Schedule
Defense Funded Only

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
Previous Years	$ 137,511	0	$ 137,511	$ 130,312
FY 1995	34,543	0	34,543	36,405
FY 1996	47,891	0	47,891	47,891
FY 1997	53,192	0	53,192	55,175
FY 1998	49,376	0	49,376	49,376
FY 1999	49,172	0	49,172	49,172
FY 2000	49,073	0	49,073	49,073
FY 2001	48,887	0	48,887	48,887

*Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

1.	Title and location of project:	Nevada Environmental Restoration Project Las Vegas, Nevada and Off-Site Locations	2a. Project No. D-1.4.1 2b. Operating Expense Funded

8. Project Description, Justification and Scope

The Nevada Operations Office (DOE-NV) has environmental restoration responsibilities for the Nevada Test Site (NTS), the Tonopah Test Range (TTR), and historical test areas on Nellis Air Force Range (NAFR), and other off-site areas in Nevada, Mississippi, Colorado, New Mexico, and Alaska. NTS covers approximately 1,350 square miles of desert. The closest major population center is Las Vegas, about 65 miles southeast of the NTS. The primary use of the NTS has been for below-ground nuclear tests and, historically, above-ground nuclear tests. Approximately 2500 individual contamination sites have been identified that include the below-ground and above-ground testing locations, ancillary waste disposal sites associated with testing activities, and areas where surficial soils were contaminated with Plutonium (Pu) as a result of safety tests of nuclear devices. DOE-NV considers Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), the Atomic Energy Act, and Nevada Hazardous Waste Act to be the primary regulatory drivers governing any remediation of the sites.

NTS:

NTS Remedial Actions:
There are three subtasks identified under NTS remedial actions: contaminated soils, underground test areas (UGTAs), and industrial sites.

2162

1. Title and location of project:	Nevada Environmental Restoration Project Las Vegas, Nevada and Off-Site Locations	2a. Project No. D-1.4.1 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Final remediation at the TTR, NTS and NAFR sites will be initiated after FY 2001. The actual scope and schedule for the Remedial Investigation/Feasibility Study (RI/FS) and remediation of plutonium-contaminated areas will be governed by a compliance agreement that is being negotiated, and by the Environmental Protection Agency (EPA) cleanup standards that are under development. Treatability studies for the plutonium (Pu) contaminated soils have been completed. The initiation of this activity is scheduled to coincide with the issuance of Record of Decisions (ROD), to allow for the phased remediation of soils at NAFR, TTR, and NTS. In baselining this activity, it was assumed that up to 30,000 acres of soils are contaminated above a yet-to-be-determined regulatory standard and could require remediation. Failure to perform the remediation would likely result in a violation of the Federal Facility Agreement (FFA) and Consent Order (CO).

The contaminated soils provide for execution of an RI/FS and the remediation of the associated sites, as required, to achieve an appropriate level of risk reduction. The RI/FS will focus on determining the potential risk associated with the resuspension of the contaminated soils, which is believed to pose the greatest risk. At least one and perhaps several sites will be cleaned up as interim actions during the time required to complete a site-wide RI/FS. The RI/FS work will characterize each site, determine the potential for contamination, and identify and evaluate the Applicable or Relevant and Appropriate Requirements, that will guide remediation. Scoping of the work effort to be performed during the planned RI/FS has resulted in a number of additional findings. These findings include the identification of additional areas of potential contamination on the NTS that should be included within this activity, the identification of preliminary risk-based exposure limits that suggest that the area of concern may be greater than 30,000 acres for Pu-contaminated soils, and the identification of other radionuclides that should be addressed as part of this activity. As a consequence of these and other findings, the scope of this activity has been modified to address all areas of contaminated soils on the NTS regardless of their origin, including soils contaminated through historic cratering experiments, soils contaminated by the venting of underground nuclear tests to the atmosphere, and soils contaminated with radionuclides other than Pu. RI/FS activities at the TTR, NTS, and NAFR sites began in FY 1992.

For the UGTAs, assessment activities will be completed in FY 1996 and will continue to address all underground test locations at the NTS and potential contamination of ground water from the testing. Assessment activities will evaluate the potential nuclear sources and migration in the saturated zone by completing a regional three-dimensional ground water flow model and a one-dimensional solute transport model. The results of the modeling will be input data for performing a risk assessment. The risk assessment will be based on various land use scenarios for off-site receptors in order to determine risk to these receptors. The modeling and risk assessment work will be documented in a report that will be submitted to all stakeholders.

Assessment activities in the field include the completion of the drilling demonstration project. This effort evaluates the dual-tube drilling techniques for use at the NTS. The unique subsurface conditions at the NTS preclude typical field methodologies employed at other facilities and, therefore, require specialized techniques.

2163

1. Title and location of project:	Nevada Environmental Restoration Project Las Vegas, Nevada and Off-Site Locations	2a. Project No. D-1.4.1 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Remediation activities will include the design and installation of ground water monitoring well networks. The design will be based on the results of the model for identification of ground water flow paths and contaminant transport and local ground water and geological data for seven areas of historic underground testing on NTS. Monitoring wells that are installed are sampled for compliance as part of interim RODs that will be prepared for the historic testing areas. The data will also be used to evaluate the effectiveness of the monitoring system in meeting the interim ROD requirements. Geologic and hydrologic data from the monitoring well installation will be evaluated to more precisely estimate current and future contaminant migration.

Remediation activities will begin in FY 1996 and will focus on the seven individual testing areas at the NTS. The regional modeling conducted as part of assessment activities will provide the framework needed for the compilation of complex local scale (testing area) models. Near field wells will be installed immediately down-gradient of the testing areas that will serve as monitoring points, but will also provide information on local scale hydrogeology to better design the rest of the monitoring networks for the test areas. Interim RODs will be prepared for the ground water monitoring to meet state and stakeholder concerns.

The industrial sites include the assessment and remediation of "like" waste units such as tunnel muck piles, tunnel ponds, sumps and injection wells, inactive tanks, leachfields, contaminated waste sites, atmospheric test debris, and other miscellaneous sites. The waste units are the result or by-product of past testing and support activities at the NTS. DOE/NV is required to maintain an inventory of all known and potential Corrective Action Units (CAUs) in accordance with the RCRA Part B Permit adopted with the State of Nevada Division of Environmental Protection (NDEP) in 1995. The Permit requires DOE to meet annually with NDEP and prioritize CAUs for corrective action investigations, and subsequent corrective action. Further, the FFA and CO will specify milestones for cleanups, with penalties identified for non-conformance.

Included in this activity are development and implementation of characterization plans, closure plans, post-closure care plans, and management of wastes generated by characterization and closure activities. The ER Sites Inventory includes data on all known DOE/NV ER sites to determine restoration responsibilities as required by the RCRA Part B Permit for tracking CAU status. Data on sites are validated through photographic monitoring and through field verification, including surveying using global positioning system techniques. New sites may be identified through review of archived literature, photographs, and site visits.

Site characterization is generally accomplished in phases, and may include researching process knowledge, planning the field effort, developing data quality objectives, and gathering preliminary data. Intrusive techniques, such as drilling and sampling, may be employed if necessary to determine whether contaminants are present and if they have migrated. Characterization may continue to define more fully the vertical and lateral extent of contamination.

2164

1.	Title and location of project:	Nevada Environmental Restoration Project Las Vegas, Nevada and Off-Site Locations	2a. Project No. D-1.4.1 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

When characterization is complete, closure plans are developed. Closure may be in the form of "clean closure." i.e., excavation or removal of all contamination, and/or remediation of the media to achieve pre-determined clean-up levels; closure-in-place, i.e., leaving the waste in place, usually stabilized, solidified, or covered with an engineered cap; a combination of removal/remediation and closure-in-place; or no action may be appropriate.

Post-closure monitoring includes activities that must take place to comply with RCRA Post-Closure Care Permit Applications submitted to the State of Nevada as part of closure activities, typically for waste units which have been closed-in-place. Post-Closure care activities consist of collecting periodic measurements and/or samples from monitoring wells, effluent streams, etc., as stipulated in each unit's post-closure care permit. Condition inspection and maintenance of any remedial systems such as caps or active systems is included as applicable. Sample analysis and preparation of a report for each monitoring period is also included.

D&D:
The D&D activity involves management and disposition of facilities that have no planned future use and which are contaminated from DOE mission-related activities. This activity includes assessment, which involves characterization of facilities, and design and preparation of D&D plans; and remediation, which involves implementation of the plans. This activity includes eight multi-structure facilities at the NTS. However, more process-contaminated facilities may be identified and determined to have no planned future use. Such facilities will be identified and managed through the Surplus Facility Inventory Assessment. "Accepted" facilities will be transitioned for eventual D&D. The principle driver for D&D is DOE Order 5820.2A, but DOE and EPA recently agreed that CERCLA applied to D&D, and the D&D facilities are covered by the FFA and CO. Target funding levels essentially preclude D&D activities on any but the smaller facilities.

Characterization will be conducted at eight multi-structure facilities. This includes periodic surveillance and maintenance before decommissioning takes place, characterization planning, sample collection and analysis, data management, data evaluation, risk/dose assessment, and assessment report preparation. A design will be prepared which specifies construction/demolition-type activities necessary for remediation.

Remediation will be conducted after completion of design activities. Remediation activities may involve dismantlement, demolition, encapsulation, and/or entombment to achieve the designated disposition alternative for each facility.

2165

1. Title and location of project:	Nevada Environmental Restoration Project Las Vegas, Nevada and Off-Site Locations	2a. Project No. D-1.4.1 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Off-Site:
There are five subtasks for remedial actions off-site from NTS. These locations are in Alaska, Colorado, Mississippi, Nevada, and New Mexico.

The off-site remedial action activity will define the magnitude and extent of contamination and the associated risks. This process will include the characterization of the physical setting of the testing area, the definition of the occurrence of contamination, and the identification of the pathways by which contamination might reach a potential receptor. The risks to receptors will also be defined through procedures identified by the EPA. Should risks be found to exceed acceptable limits, the requirements for risk reduction through remediation or other actions will be established. The regulatory drivers are CERCLA/SARA Title I, Section 120, 40 CFR 300.68, and 40 CFR 300.70. In addition, activities for the two off-sites in Nevada, the Project Shoal Area and the Central Nevada Test Area, are covered by the FFA and CO. If unfunded, noncompliance with the terms and conditions of the existing or anticipated AIPs and agreement is likely to occur.

Alaska remedial action activities have been initiated in FY 1995 through rescoring of the site through the EPAs Hazard Ranking System and the development of a work plan. During the rescoring, additional information concerning the regulatory authority and the potential need for an RI/FS of the site will be determined. Assessment of the site will be completed in FY 1998. If necessary, remediation activities will be initiated in FY 1998 and continue until FY 2001.

Remedial action efforts for the Colorado site at Rulison will be initiated in FY 1995 through the development of preliminary site characterization plans relying largely on existing data on the site and scoping of the Rulison site. Assessment activities will be completed in FY 1999. Interim action remedial activities are underway in FY 1995 with remediation of the sediment in the drilling effluent pond at Rulison. Assessment activities at the Rio Blanco site will begin in FY 1995 and be completed in FY 2000. Remedial activities will begin in FY 2000 if required, and will finish in FY 2000.

RI/FS activities for the Salmon Site in Mississippi will be completed in FY 1996. If required, remediation activities will begin in FY 1998 and will be completed in FY 1999. If unfunded, a final Administrative Order from the State regulatory authority is anticipated.

Assessment activities at the Nevada off-site location of the Central Nevada Test Area (CNTA) were initiated in FY 1994. During the scoping, additional information concerning the regulatory authority and the potential need for information concerning the need for an RI/FS work plan for the CNTA was prepared. The remediation activities at the CNTA will begin in FY 1996 with the closure of three drilling mudpits. Preparation of the preliminary characterization report for Shoal and CNTA began in FY 1995. Both Shoal and CNTA are scheduled to be closed by FY 1998.

New Mexico remedial action activities at the Gnome-Coach Test Site and the Gasbuggy Site will be completed in FY 1999. If necessary, remediation of the Gnome-Coach site will begin in FY 1999. Preparation of the preliminary characterization report for the Gnome-Coach and Gasbuggy Sites began in FY 1995.

2166

1. Title and location of project:	Nevada Environmental Restoration Project Las Vegas, Nevada and Off-Site Locations	2a. Project No. D-1.4.1 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

DOE-NV's primary goals are to achieve full compliance with all environmental laws and regulations and to control further releases. An additional goal is to attain, within 30 years, an acceptable cleanup of hazardous substances, pollutants, and contaminants, which at a minimum insures protection of human health and the environment. To achieve these goals, DOE-NV will bring all current operations into full compliance with applicable regulatory requirements, assess and clean up inactive waste sites and facilities, continue safe and effective waste management operations that emphasize systematic minimization of waste generation, and coordinate a research and development program to develop new technologies that yield permanent remedial actions at lower costs. The State of Nevada will be involved via a FFA and CO with DOE. DOE-NV has already increased its focus on public participation through the development and implementation of an EM Public Participation Plan and the establishment of a Community Advisory Board.

9. Method of Performance

A performance-based management contractor, with a cost plus award fee contract, will perform waste management and remediation activities. An environmental support technical cost plus fixed fee contract was signed in FY 1992 to perform characterization activities for DOE-NV Environmental Restoration Major Project.

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 136,318	$ 31,502	$ 45,400	$ 51,095	$ 187,920	$ 452,235
2. Decontamination & Dismantlement	1,193	693	520	1,000	4,000	7,406
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	2,348	1,971	1,097	4,588	10,004
b. Contingency	0	0	0	0	0	0
Total	$ 137,511	$ 34,543	$47,891	$ 53,192	$ 196,508	$ 469,645

1.	Title and location of project:	Nevada Environmental Restoration Project Las Vegas, Nevada and Off-Site Locations	2a. Project No. D-1.4.1 2b. Operating Expense Funded

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and location of project: Oakland Environmental Restoration Project
Various Locations

2a. Project No. D/ND-1.4.8

2b. Operating Expense Funded

3a. Date assessment phase initiated: 1st Qtr FY 1990

3b. Duration of assessment phase: 108 months

4a. Date remediation phase starts: 1st Qtr., FY 1990

4b. Date remediation phase ends: Past FY 2001

5. Previous cost estimate:
Total Estimated Cost (TEC): See TPC
Total Project Cost (TPC): $480,006

6. Current cost estimate: (through FY 2001)
TEC: See TPC
TPC: Defense $303,474
Non-Defense 176,450
$479,924

7. Financial Schedule

Fiscal Year		Appropriations	Adjustments	Obligations	Costs
Previous Years	Defense	$ 142,012	0	$ 142,012	$ 138,111
	Non-Defense	67,258	0	67,258	63,479
	Total	209,270	0	209,270	201,590
FY 1995	Defense	26,037	0	26,037	23,988
	Non-Defense	13,577	0	13,577	15,810
	Total	39,614	0	39,614	39,798
FY 1996	Defense	27,092	0	27,092	28,588
	Non-Defense	16,557	0	16,557	16,557
	Total	43,649	0	43,649	45,145

2169

1. Title and location of project:	Oakland Environmental Restoration Project Various Locations		2a. Project No. D/ND-1.4.8 2b. Operating Expense Funded		
7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	FY 1997 Defense	24,081	0	24,081	26,535
	Non-Defense	17,025	0	17,025	17,571
	Total	41,106	0	41,106	44,106
	FY 1998 Defense	21,196	0	21,196	23,196
	Non-Defense	15,549	0	15,549	16,549
	Total	36,745	0	36,745	39,745
	FY 1999 Defense	21,084	0	21,084	21,084
	Non-Defense	15,501	0	15,501	15,501
	Total	36,585	0	36,585	36,585
	FY 2000 Defense	21,033	0	21,033	21,033
	Non-Defense	15,495	0	15,495	15,495
	Total	36,528	0	36,528	36,528
				0	
	FY 2001 Defense	20,939	0	20,939	20,939
	Non-Defense	15,488	0	15,488	15,488
	Total	36,427	0	36,427	36,427
	Defense	$ 303,474	$ 0	$ 303,474	$ 303,474
	Non-Defense	176,450	0	176,450	176,450
	Total	$ 479,924	$ 0	$ 479,924	$ 479,924

1. Title and location of project:	Oakland Environmental Restoration Project	2a. Project No. D/ND-1.4.8
	Various Locations	2b. Operating Expense Funded

8. Project Description, Justification and Scope

LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)

Remedial Action activities involve the environmental investigation and remediation of contaminants in the subsurface at two Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) National Priorities List sites. At the LLNL Livermore Site, there are organic solvents dissolved in ground water at concentrations as high as 10 ppm. In addition, there is one monitoring well on-site with tritium concentrations above the drinking water standard. The entire plume of contaminated ground water at the Livermore Site covers approximately 1 1/4 square miles. The total amount of contaminants is less than 500 gallons. There is also a fuel hydrocarbon leak from an old underground storage tank that released an estimated 20,000 gallons of gasoline. The ground water will be remediated by pumping and treating all of the water within the area of the contaminated plume such that no contaminants will be allowed to pass through the area of the plume without being drawn into one of the extraction wells. The extracted ground water will then be treated at one of seven treatment facilities (currently constructed or planned) and the treated water discharged to surface drainage, reinjected into the aquifer to facilitate cleanup, and/or used for LLNL landscape irrigation or in LLNL cooling towers. Pipelines will be installed to route water from specific areas on- and off-site to reduce plume migration. Livermore site remedial actions also include document preparation; community relations; compliance monitoring; geologic analysis, treatment facility design, construction and operation; source investigations; and well field emplacement.

At LLNL Site 300, there are several small plumes of organic solvents and one plume of tritium in the ground water. The ground water with the tritium plume is moving slowly and modeling indicates that it will be below the safe drinking water levels before the ground water reaches the border of the site. However, due to the California Porter Cologne Act which prohibits the non-degradation of state waters, actions are required to prevent any further migration of contamination. In the area around Building 834, a plume of trichloroethylene (TCE) is present at very high concentrations, but it is confined to a perched aquifer. The site will be remediated to ensure that the TCE does not migrate to the regional aquifer. At the southern part of the site in the General Services Area (GSA), there are three plumes of low-level organic solvents that have migrated off-site. These plumes will be contained (with a decision to use applicable innovative technologies as the remedial action prior to the final Record of Decision (ROD)) by pump and treat technology through interim treatment facilities that are and will be constructed on-site until a final remediation strategy is developed.

- Site 300 Remedial Investigation (RI) includes monitoring activities at portions of the site that do not appear to pose a threat to human health and the environment. Miscellaneous Areas to be monitored include Building 801/Pit 8, 802, 833, 845/Pit 9, 851, Pit 1, Pit 2, and Building 865 (ATA) areas. Monitoring is required by CERCLA and will continue at least until issuance of a site-wide ROD.
- The Burn Pit Closure is a Resource Conservation and Recovery Act (RCRA) closure, to be completed in the FY 1998 to FY 1999 timeframe, and inspection activities associated with the caps on the High Explosive Burn Pit and Pits 1 and 7 will continue through FY 2001.
- Assessment and cleanup activities are ongoing in the GSA/Operable Unit (OU) 1 at Site 300. Two CERCLA Removal Actions are in progress which involves ground water extraction and treatment by air sparging. Soil vapor extraction is also planned as a remedial action. A final ROD as a this OU will be approved in early FY 1997.

2171

1. Title and location of project:	Oakland Environmental Restoration Project	2a. Project No. D/ND-1.4.8
	Various Locations	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

- Assessment and interim cleanup activities are underway at the Building 834 area OU 2 at Site 300. The cleanup proposals/technologies will address the spectrum of relevant cleanup/containment strategies, ranging from no further action to total cleanup as mandated by CERCLA. This site is located over a perched aquifer which makes this site ideal for testing new and innovative ideas. To accelerate the cleanup, pilot testing of the ground water/soil vapor extraction and treatment systems began in FY 1994 as a CERCLA Removal Action.
- Assessment activities are being finalized and cleanup activities will include capping the Pit 6 Landfill OU 3 at Site 300. Site characterization work was completed during FY 1993. A draft final Feasibility Study (FS) has been completed for this OU3, a final FS was completed in FY 1995, with a final ROD expected in FY 1997. The cupping of Pit 6 is anticipated as a CERCLA removal action to be completed in FY97.
- At the High Explosive Process Area OU 4 at Site 300, a removal action to remove approximately 25 drums will be completed in FY 1998.
- Assessment and cleanup activities are continuing in the Building 850/Pits 3 and 5 Area (includes assessment of uranium and polychlorinated biphenyls) and remedial investigation and potential cleanup activities at the Building 854 Complex, Building 812, and Sandia test area. East and West Firing Areas will continue to be monitored.
- Some of the activities at all OUs will be moved to a site-wide monitoring OU once a no further remedial action has been determined.

Program Management - This sub-project covers site management and support management for the Environmental Restoration Program at LLNL.

GENERAL ATOMICS (GA) - HOT CELL FACILITY:

This project is for the decontamination and dismantlement (D&D) of the Hot Cell Facility and removal of DOE-owned irradiated and material from GA to a DOE storage facility. GA is privately owned and located in LaJolla, California. The facility was utilized for past DOE contracted operations. The DOE project is for that portion (76%) of the total D&D that is related to DOE use of the facility. The owner will provide services and/or funding in proportion to the facility's use (24%) for commercial purposes. Program management activities include integration of all activities required to plan, execute, and manage the program in accordance with DOE, State and local requirements. The primary objective is to prevent contamination from migrating to the environment with related potential adverse effects on the surrounding population. The project is also required by the terms of the owners Nuclear Regulatory Commission (NRC) license and related decommissioning plan and DOE contractual obligation. Rapidly expanding commercial development of areas immediately adjacent to the site will also present the likely probability of significant public attention should the project not be completed in a timely manner.

1. Title and location of project:	Oakland Environmental Restoration Project	2a. Project No. D/ND-1.4.8
	Various Locations	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

GENERAL ELECTRIC (GE):

This project involves the decontamination of an Alpha Hot Cell (in Building 102) (for continued use) and the decontamination, dismantlement and disposal of a Glove Box (in Building 103) all privately owned by GE, located in Vallecitos, California. Construction type activities at the facility include decontamination to remove alpha contamination in accordance with the requirements of the site NRC license. The scope of the DOE project will be in proportion to the relative proportion of DOE contract work relative to GE commercial work performed in the facility. This summary subproject includes overall management and integration of Environmental Restoration activities. Activities include planning, project control and administration, and management oversight.

LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH (LEHR):

Primary project justification is the removal and prevention of contamination migration to the environment with related potential adverse effects on the surrounding population. The project also prevents non-compliance with Federal and State regulations and a CERCLA Federal Facilities Agreement which could result in significant fines, as well as adverse community, media and Congressional reactions.

Remedial action at LEHR includes assessment and remediation of soil and ground water (by others). Activities include characterizing the soil, including an underground tank system, and ground water to determine the nature and extent of contamination, and to conducting a site-wide Feasibility Study. A ROD, a remedial action plan, and remedial design for remediation of DOE contaminated areas will be prepared as required. DOE is responsible for the disposal of any contaminated waste generated from environmental restoration work.

The technical scope includes data transmittal of quarterly ground water and surface water monitoring reports, Implementation of RI/FS workplan, annual ground and surface water monitoring report, annual site environmental monitoring report, air emissions (NESHAP) annual report. Associated program management activities (e.g. contract management, regulatory and public interface, development of DOE required plans, and reports, project plan, baseline, etc, and oversight of subcontractor activities) are included in support of this subproject.

Technical scope of the D&D activities in this subproject include removal of Dog Pens from landfill Unit #2 for unrestricted use by the University of California at Davis. Activities include demolition of Dog Pens, waste minimization, off-site disposal of waste, and final surveys. Activities performed also include preparation of statement of work for contractors; negotiation of subcontracts; preparation of funding documents; plans and reports; and providing health and safety, waste management, environmental compliance, and Quality Assurance oversight for all activities.

2173

1. Title and location of project:	Oakland Environmental Restoration Project	2a. Project No. D/ND-1.4.8
	Various Locations	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

SANTA SUSANA FIELD LABORATORY (SSFL)

D&D - Plans are to D&D the Rockwell International Hot Lab (Building 020), located at the SSFL in Simi Valley, Ventura County, California. Operations of the Hot Lab Facility were in support of DOE contracts related to DOE Defense Program activities. Responsibility for D&D of the facility has been accepted by the DOE Surplus Facilities Management Program and transferred to the DOE/Office of Environmental Management. Since the operation of the facility was in support of DOE/Defense Programs, the wastes resulting from operations will be disposed of at the Nevada Test Site. Decontamination requirements are dictated by the NRC license held by the facility operator and the operating contract between DOE and Rockwell International. The Hot Lab consists of four large interconnected hot cells and decontamination rooms, an operating gallery, and associated electrical and pump rooms. In addition to decontamination of the structure, this sub-project includes complete decontamination of asphalt, concrete pads, and the surrounding yard. Construction activities, as related to contractual requirements, dictate that the facility be decontaminated to "unrestricted use". Demolition of the facility will be required due to the extent of structural dismantlement.

ENERGY TECHNOLOGY ENGINEERING CENTER (ETEC)

The scope of work involves the removal and disposal of all radioactive and hazardous wastes, the remediation of adjacent soils and connected support facilities, and the demolition and restoration of the facility site.

Remedial action activities include Area IV characterization and media monitoring, SSFL ground water assessments, SSFL ground water cleanup and remediation of Solid Waste Management Units and areas of concern identified in the Environmental Protection Agency's RCRA Facility Assessment. Soil and ground water contamination studies will continue to determine the extent and nature of contamination from former DOE operations on the site. Scope of soil and ground water is separated into the assessment and remediation phases. Field investigation includes installation of monitoring wells, collection of air, water, and soil samples, soil and gas surveys, and geologic and geophysical studies. The remediation phase will be developed after appropriate inquiry has been completed, and may include testing of new technologies. Program management activities to support assessment and remediation include those required to plan, execute, and manage the Environmental Restoration Program to maintain compliance with Federal, State, DOE, and local requirements.

D&D activities at this site consists of the decontamination for unrestricted use and environmental restoration of DOE-owned facilities located in Area IV of the SSFL in Ventura County, California. Formerly utilized DOE facilities containing radioactive and hazardous contamination must be decontaminated for eventual release of the facility to the land lessor for unrestricted use. The Radioactive Material Disposal Facility (RMDF) Complex is the last remaining radiological facility to be decontaminated and presents the most significant potential hazard for release of radiological contaminants. D&D projects completed require final survey and close-out. The final radiological project is D&D of the RMDF. Activities performed include preparation of statement of work for contractors, negotiation of subcontracts, preparation of funding documents, plans and reports, and providing health and safety, waste management, environmental compliance, and quality assurance oversight for all activities.

2174

1. Title and location of project:	Oakland Environmental Restoration Project	2a. Project No. D/ND-1.4.8
	Various Locations	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The remedial action and D&D activities are required at ETEC to remove the contamination from past practices and to remediate contaminated surplus facilities. If these activities are not performed, the possibility exists for migration of radioactive and/or hazardous materials to the environment. In addition, non-compliance with Federal and State orders would result in fines and adverse public, media, and Congressional attention. Regulatory drivers include DOE Order 5820.2A, National Pollutant Discharge Elimination System Permit No. CA0001309, 40 CFR 264.90, State of California Toxic Pits Closure Act.

STANFORD LINEAR ACCELERATOR CENTER (SLAC):

The Environmental Restoration Program encompasses the efforts required to characterize and remediate the soils and ground water brought about by DOE-contracted activities at SLAC, a 426-acre site owned by Stanford University and leased to DOE. Current restoration activities are centered on numerous polychlorinated biphenyl-contaminated soil sites and four instances of solvent-contaminated ground water. Soil and ground water is the only technical subproject affiliated with this project.

Primary project justification is the prevention of contamination migration to the environment with related potential adverse effects on the surrounding community. The project also averts non-compliance with Federal and State regulations which could result in significant fines as well as adverse public reactions. Primary regulatory drivers include the Toxic Substances Control Act and a Regional Water Quality Control Order requiring characterization and remediation of ground water contamination, as well as DOE Orders 5400.1 and 5400.4.

LAWRENCE BERKELEY NATIONAL LABORATORY (LBNL):

LBNL consists of a 130-acre facility operated by the University of California for DOE on land owned by the University. Remedial action activities at LBNL consist of the characterization and remediation of heavy metals and solvent-contaminated soil and ground water and the RCRA closure of an existing Hazardous Waste Handling Facility (HWHF). Environmental Restoration activities at LBNL will be conducted under the purview of RCRA Correction Action requirements associated with the permitting of a new HWHF. Scope of soil and ground water is separated into the assessment and remediation phases. Assessment includes a RCRA Facility Assessment, RCRA Facility Investigation, and a Corrective Measures Study. Field investigation includes installation of monitoring wells, collection of air, water, and soil samples, soil and gas surveys, and geologic and geophysical studies. The remediation phase will be developed after appropriate inquiry has been completed, and may include testing of new technologies. Site characterization and remediation activities are required to satisfy a RCRA Part B Permit. A RCRA Part B Permit is required in order for LBNL to start operation of a new HWHF.

1. Title and location of project:	Oakland Environmental Restoration Project	2a. Project No. D/ND-1.4.8
	Various Locations	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The HWHF Closure Plan required by the RCRA Part B permit is designed to ensure that the facility will not require further maintenance, eliminates threats to human health and the environment, and precludes escape of hazardous wastes or contaminants. Planning for the construction of a new HWHF is under way. The purpose of the new facility is to bring LBNL into compliance with applicable laws and regulations regarding the storage and disposal of hazardous, mixed, and radioactive wastes generated by LBNL program activities. The closure of the existing HWHF at LBNL is required under the RCRA Part B permit issued by the State of California, Department of Toxic Substances Control.

PROGRAM MANAGEMENT:

Program management is the administrative function that supports all Environmental Restoration projects. Major program management activities include administration, project controls, and technical support. Administrative responsibilities include maintaining a liaison with DOE and coordinating activities. Project control responsibilities include preparation of programmatic documents, etc. Technical support includes a technical advisory board which provides overall technical guidance.

CONTRACTOR SUPPORT/STATE GRANTS:

The purpose of contractual services is to support the field office's environmental restoration functions, which are regulated by a consortium of Federal and State regulatory agencies to ensure DOE's adherence to environmental laws and regulations. These functions include program management guidance, direction and appraisal of the overall environmental restoration activities of assigned contractors and laboratories, coordination with other Oakland organizations, and functions to assure proper utilization of resources, and liaison between top DOE management and DOE/Headquarters and top management of regulatory agencies and the laboratories. The purpose of State Grants is to allow active involvement by representatives of the appropriate State agencies to ensure compliance with applicable State and local laws and regulations. Without a provision for reimbursement of State oversight activities, the State would almost certainly issue one or multiple enforcement order(s) against DOE which would require resolution through costly legal proceedings.

Contractor Support - Environmental/management consultants support the environmental restoration efforts in areas of specialized expertise. This expertise is not available nor needed on a full-time basis. Activities include performing cost validations, developing database systems, providing technical evaluations, and performing sampling and analysis testing. Technical expertise includes, but is not confined to, areas of specialized knowledge such as toxicology, chemistry, environmental specialty and/or engineering, and the life and earth sciences areas. Other areas of expertise include experience and/or certification to perform tests and measurements. On-site activities include sampling and analysis, testing of equipment, and inspection of on-site conditions to validate elements of the environmental management program. Off-site (office) activities include drafting documents, verifying calculations, performing data processing, and site specific plan processing.

2176

1. Title and location of project:	Oakland Environmental Restoration Project	2a. Project No. D/ND-1.4.8
	Various Locations	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

State Grants - Participation and concurrence by State regulatory agencies is mandatory in order to successfully conclude the RCRA and CERCLA programs at all DOE/Oakland (DOE/OAK) sites and allow DOE to fulfill its legal obligation. Grants have been awarded to the State of California's Department of Toxic substances Control and Water Quality Management Board for LLNL, LEHR, LBNL, and SLAC.

9. Method of Performance

LLNL: All work on the project will be conducted by the University of California under a Management and Operating (M&O) contract with the DOE with appropriate subcontracts, as necessary, for such things as hydrogeological services, drilling, and construction activities.

GA and GE: GA and GE contract strategy has been changed making GA and GE sole-source contractors. Oversight of project completion objectives will be provided by DOE/HQ and Field Office.

LEHR: Program management and site health and safety assurance are being provided by the Richland M&O Pacific Northwest Laboratory (PNL). Specific Project tasks will be contracted by PNL according to DOE contracting requirements. Independent oversight of project completion objectives will be provided by an independent contractor procured by DOE/HQ.

SSFL: Rockwell, Rocketdyne Division, has been contracted with by DOE/OAK to perform the D&D and demolition of the facility. Contractor activities are overseen by DOE/OAK/EM and the NRC. Independent verification of final release of the facility will be made by Oak Ridge Institute for Science and Education under a contract with both DOE and NRC. The performance schedule of this project is driven by the requirements of the NRC license, by contract between DOE and Rockwell International, as well as the highly-visible nature of the facility. Strong public, media, and Congressional attention has been received by this project.

ETEC: Rocketdyne Division of Rockwell International, through an existing management and operating (M&O) contract with DOE, will provide the primary oversight of the project and significant portions of the project labor. Additional labor will be subcontracted in accordance with DOE contracting regulations. Independent oversight of project completion objectives will be provided by an independent contractor procured by DOE/HQ.

SLAC: Identification, evaluation, and prioritization of remedial action sites will be accomplished under the management and operating contract with Stanford University. Site characterization, sampling, and document preparation will be supported by environmental subcontractors. Chemical analysis will be performed by Environmental Protection Agency (EPA) certified laboratories. Engineering, design and implementation of selected remedies will be furnished by contractors. All contractors and laboratories will be chosen by competitive bidding and fixed price contracts in accordance with DOE regulations for selection and award.

2177

1. Title and location of project:	Oakland Environmental Restoration Project	2a. Project No. D/ND-1.4.8
	Various Locations	2b. Operating Expense Funded

9. Method of Performance (continued)

LBNL: Identification, evaluation, and prioritization of remedial action sites will be accomplished under the M&O contract with the University of California. Site characterization, sampling, and document preparation will be supported by environmental subcontractors. Chemical analysis will be performed by EPA certified laboratories. Engineering, design and implementation of selected remedies will be furnished by contractors. All contractors and laboratories will be chosen by competitive bidding and fixed prices contracts in accordance with DOE regulations for selection and award.

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 158,260	$ 35,753	$ 34,735	$ 33,190	$ 112,454	$ 374,392
2. Decontamination & Dismantlement	50,185	3,536	8,714	7,522	32,411	102,368
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	825	325	200	394	1,420	3,164
b. Contingency	0	0	0	0	0	0
Total	$ 209,270	$ 39,614	$ 43,649	$ 41,106	$ 146,285	$ 479,924

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Oak Ridge Operations Office Oak Ridge, Tennessee	2a.	Project No. D/ND-1.4.12
		2b.	Operating Expense Funded
3a.	Date assessment phase initiated: N/A	5.	Previous cost estimate:
3b.	Duration of assessment phase: N/A		Total Estimated Cost (TEC): See TPC Total Project Cost (TPC): $1,839,198
4a.	Date remediation phase starts: N/A	6.	Current cost estimate: (through FY 2001)
4b.	Date remediation phase ends: N/A		TEC: See TPC TPC: $1,909,713*

7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
Previous Years	Defense	$ 948,120	0	$ 948,120	$ 898,685
	Non-Defense	154,375	0	154,375	129,288
	Total	1,102,495	0	$ 1,102,495	1,027,973
FY 1995	Defense	81,369	0	81,369	128,397
	Non-Defense	52,005	0	52,005	64,923
	Total	133,374	0	133,374	193,320
FY 1996	Defense	86,389	0	86,389	86,389
	Non-Defense	36,189	0	36,189	36,189
	Total	122,578	0	122,578	122,578

*Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

1. Title and location of project:	Oak Ridge Operations Office	2a. Project No. D/ND-1.4.12			
	Oak Ridge, Tennessee	2b. Operating Expense Funded			
7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	FY 1997 Defense	76,488	0	76,488	76,488
	Non-Defense	42,012	0	42,012	42,012
	Total	118,500	0	118,500	118,500
	FY 1998 Defense	71,740	0	71,740	71,740
	Non-Defense	36,909	0	36,909	36,909
	Total	108,649	0	108,649	108,649
	FY 1999 Defense	71,444	0	71,444	71,444
	Non-Defense	36,798	0	36,798	36,798
	Total	108,242	0	108,242	108,242
	FY 2000 Defense	71,300	0	71,300	71,300
	Non-Defense	36,781	0	36,781	36,781
	Total	108,081	0	108,081	108,081
	FY 2001 Defense	71,030	0	71,030	71,030
	Non-Defense	36,764	0	36,764	36,764
	Total	107,794	0	107,794	107,794
	Defense	$ 1,477,880	$ 0	$ 1,477,880	$ 1,475,473
	Non-Defense	431,833	0	431,833	419,664
	Total	$1,909,713	$ 0	$1,909,713	$ 1,895,137

1. Title and location of project:	Oak Ridge Operations Office Oak Ridge, Tennessee	2a. Project No. D/ND-1.4.12 2b. Operating Expense Funded

8. Project Description, Justification and Scope

The Environmental Restoration (ER)/Defense Major Systems Acquisition (MSA) is the aggregation of those activities required for the Department of Energy to satisfy its goal of a 30-year remediation of contaminated sites at all of the facilities and areas under its cognizance. This includes those activities necessary to plan, budget, and manage all work necessary to meet the goal. Remedial Action (RA) and Decontamination and Dismantlement (D&D) activities are conducted in accordance with State and Federal regulatory requirements and are often governed by chosen plans, consent decrees, and/or Federal Facility Agreements (FFAs), and/or Federal Facility Compliance Agreements.

Oak Ridge Operations Office (ORO):

The facilities managed by Lockheed Martin Energy Systems, Inc., at the DOE ORO where the ER activities are partially funded by the Defense funds are: the Y-12 Plant (fully defense funded), the Oak Ridge National Laboratory (ORNL), the K-25 Plant, and other Oak Ridge Reservation (ORR) sites. In addition, other areas not on the ORR are included. Activities at other areas in Oak Ridge but not on the Reservation and the activities required to manage the MSA are funded by the ORO-MSA defense appropriation.

RA:
RA activities include Remedial Investigations/Feasibility Studies (RI/FS) of contaminated sites, Resource Conservation and Recovery Act (RCRA) facilities assessments, interim corrective measures, remedial design and construction, and independent verification of the remedial activities.

D&D:
Activities include the D&D of surplus facilities and equipment contaminated by various chemical and radioactive wastes. Pending the final disposition of the D&D facilities, the goal of this activity is to initially place the D&D facilities in a state where they are harmless to the general public or, if the units cannot be acceptably decontaminated, to isolate and contain the units in order that the general public is not exposed to them. Surveillance and maintenance (S&M) of facilities are also considered a part of this program.

Y-12 Plant:

RA:
The Y-12 Plant occupies an 811 acre site in the Bear Creek Valley about 2 miles from downtown Oak Ridge, Tennessee. The site is drained by Bear Creek and the East Fork Poplar Creek (EFPC). The operable units are grouped within three hydrogeological regimes: (1) Bear Creek Valley, located west of S-3 Ponds; (2) Upper EFPC, located east of S-3 Ponds through Y-12 Plant to the outfall of Lake Reality, and (3) Chestnut Ridge. The Y-12 Plant contains many facilities that have been used for treating, storing, or disposing of hazardous and radioactive materials and wastes.

2181

1. Title and location of project:	Oak Ridge Operations Office	2a. Project No. D/ND-1.4.12
	Oak Ridge, Tennessee	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

D&D:
The Y-12 Plant D&D Program includes facilities which have been identified as having no further mission in the Defense Program and have been transferred to Environmental Restoration. Currently, Building 9201-4 is the only Y-12 facility that has been accepted into the Program. The 9201-4 project's initial phase includes planning and assessment activities consisting of surveillance and maintenance, asbestos removal, and Pre-Phase I assessment evaluation, safety analysis, and risk analysis. D&D of Building 9201-4 will eventually result in a gutted building.

Program Management Support:
This is a separate Summary Subproject for the Program Management activities that support more than one remedial action subproject at the Y-12 Plant.

ORNL:

ORNL RA:
The ORNL ER Program addresses the remediation of environmental contamination resulting primarily from past waste management practices. Past research and development and waste management activities at ORNL have produced a significant number of surplus, inactive facilities contaminated with low-level radioactive and/or hazardous chemical wastes. Such sites include solid waste storage areas, waste ponds and seepage pits, radioactive waste processing and transfer facilities, research laboratories, dedicated environmental research areas, experimental reactors, radioisotope development facilities, and the areas surrounding these sites. A wide variety of liquid and solid wastes, primarily radioactive or mixed wastes, have been disposed of on-site; 300 contaminated sites have been identified on the 2,900 acre ORNL area. Because of the large number of sites to be considered and the hydrogeological complexity of the ORNL area, the remedial action strategy is oriented toward waste area groupings (WAGs). The ORNL sites have been placed within 20 such groupings, 13 of which are scheduled for detailed investigation and characterization, defined by watersheds that contain contiguous and similar remedial action sites, each representing distinct small drainage areas within which similar contaminants were introduced. Activities include RI/FS of contaminated sites, RCRA facilities assessments, interim corrective measures, remedial design and construction, and independent verification of the remedial activities.

Oak Ridge Associated Universities (ORAU):

Due to former activities at the ORAU facilities (Freels Bend Area and the South Campus) areas were contaminated. The RI/FS and RA at these sites are funded in this MSA.

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1. Title and location of project:	Oak Ridge Operations Office Oak Ridge, Tennessee	2a. Project No. D/ND-1.4.12 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

ORR:

Clinch River/Watts Bar:
The Clinch River/Watts Bar RI is a multiple-facility (Y-12, ORNL, K-25) and reservation-wide task that addresses the transport of water-borne contaminants beyond the boundary of the DOE ORR; the contamination of water, sediment, and biota in off-site surface-water environments; and the risks to human health and the environment associated with off-site contamination. This activity includes investigation of the nature and extent of contamination, identification and evaluation of remediation alternatives, implementation of selected remedial actions, and any interim measures determined to be necessary to protect human health and the environment.

Primary areas of investigation include Melton Hill Reservoir, the Clinch River from Melton Hill Dam to its confluence with the Tennessee River, the White Oak Creek Embayment, and the Poplar Creek Reservoir. The system is large, encompassing 140 river miles in length and 44,000 acres in surface area, and is used for municipal water supply, sport fishing, boating, swimming, tourism, and residential development. Contaminants of concern include metals (primarily Mercury, Lead, Arsenic, Selenium, and Chromium), organic compounds (primarily polychlorinated biphenyls, dioxin, and chlordane), and radionuclides (primarily Cesium-137, Cobalt-60, Hydrogen-3, and Strontium-90).

Non-FFA Sites:

There are several sites not on the Oak Ridge Reservation that were contaminated due to the operations at the DOE Facilities. The cleanup of those sites is included in this Summary Subproject. They include the Atomic City Auto Parts Site, David Witherspoon Site, and the CSX Transportation Site.

Lower EFPC:

EFPC originates as an on-site surface water drainage system at the Y-12 Plant. During plant operation, EFPC has received various treated and untreated discharges from building drains as well as non-contact process cooling waters and site runoff. As a result, the EFPC and its floodplain have become contaminated with materials such as mercury, uranium, thorium, chromium, and zinc. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process for EFPC has begun, starting at Outfall of Lake Reality as EFPC exits the Y-12 plant.

1. Title and location of project:	Oak Ridge Operations Office Oak Ridge, Tennessee	2a. Project No. D/ND-1.4.12 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

K-25 Site:

D&D:
There are eighty-two facilities at the K-25 Plant that require S&M and eventual D&D; thirteen former Centrifuge facilities and sixty-nine gaseous diffusion process facilities, including the five main process buildings.

Landlord:
The purpose of these activities is to achieve and/or maintain a site infrastructure which can best support critical DOE Programs located at the K-25 Plant. This goal will be achieved by the procurement of capital equipment, the construction of new facilities when required, and improving existing facilities through electrical upgrades, asbestos abatements, and similar type projects.

Program Management Support:
Activities that support the K-25 Site ER Program as a whole and cannot be associated with any particular Summary Subproject are funded in Program Management Support. These include the site wide reporting, baselines, technical integration, and senior management of the DOE Prime Contractors. Also included are special projects that require funding but do not fall within any of the Summary Subprojects, such as historical investigations and preliminary assessments/site investigations.

ER Waste Management Treatment/Storage/Disposal (TSD):
Activities are necessary to provide capacity for ER waste generation. These activities include funding for commercial TSD activities. Lockheed Martin Energy Systems (LMES) support functions include program management, training, systems and planning, and waste minimization. These activities include all waste streams (including D&D wastes) that cannot be treated or disposed of within the areas of contamination at all sites. The ER waste management technical scope also involves TSD facilities/activities to provide capacity for ER waste generation which has been left untreated in storage or cannot be provided final disposition during remediation.

Construction Type Facilities:
This program is required to construct certain facilities/systems to carry out its mission. The following are those subprojects that are not remediation-related but are still necessary to perform the program mission.

2184

1. Title and location of project:	Oak Ridge Operations Office	2a. Project No. D/ND-1.4.12
	Oak Ridge, Tennessee	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Process modifications will be made to the existing Central Pollution Control Facility. The modifications will utilize existing equipment and add new equipment as required to meet National Pollutant Discharge Elimination System permit requirements for mercury discharges.

The Y-12 Containerized Waste Storage Facility, the Mercury Roaster Pilot Facility, the RCRA Storage Building, the Y-12 Class IV Landfill, and the Y-12 Mercury Roaster have been deleted from the FY 1994-2000 timeframe.

ORNL:

The ORNL ER Program addresses the cleanup of environmental contamination resulting primarily from past waste management practices. Past research and development and waste management activities at ORNL have produced a significant number of surplus, inactive facilities contaminated with low-level radioactive and/or hazardous chemical wastes. Such sites include solid waste storage areas, waste ponds and seepage pits, radioactive waste processing and transfer facilities, research laboratories, dedicated environmental research areas, experimental reactors, radioisotope development facilities, and the areas surrounding these sites. A wide variety of liquid and solid wastes, primarily radioactive or mixed wastes, have been disposed of on-site; 300 contaminated sites have been identified on the 2,900 acre ORNL area.

RA:
Activities include RI/FS of contaminated sites, RCRA facilities assessments, interim corrective measures, remedial design and construction and independent verification of the remedial activities.

The Office Trailers project at ORNL is under $1.2M and not included in the above RA descriptions.

Because of the large number of sites to be considered and the hydrogeological complexity of the ORNL area, the remedial action strategy is oriented toward WAGs. The ORNL sites have been placed within 20 such groupings, defined by watersheds that contain contiguous and similar remedial action sites, each representing distinct small drainage areas within which similar contaminants were introduced.

2185

1. Title and location of project:	Oak Ridge Operations Office	2a. Project No. D/ND-1.4.12
	Oak Ridge, Tennessee	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

D&D:
Activities include the D&D of surplus facilities and equipment contaminated by various chemical and radioactive wastes. Pending the final disposition of the D&D facilities, the goal of this activity is to place the D&D facilities in a state where they are harmless to the general public or, if the units cannot be acceptably decontaminated, to isolate and contain the units in order that the general public is not exposed to them. S&M of facilities are also considered a part of this program.

Project Management Support:
This is a separate Summary Subproject for the Program Management activities that support more than one remedial action subproject at ORNL.

Construction Type Facilities:
This program is required to construct certain facilities/systems to carry out its mission. The following are those subprojects that are not remediation related but are still necessary to perform the program mission.

The following ORNL projects reflect the most recent in-depth review of approved construction projects. Projects shown in prior Construction Project Data Sheets should not have been classified as construction-type activities.

Process Waste Surge Tank:
Scope consists of a surge tank to be built to replace the 3524 equalization basin and the 190 basins at ORNL to provide surge capacity for the Process Waste Treatment System during periods of heavy rainfall. This project will support a required CERCLA remediation activity to close the surface impoundments in WAG 1 scheduled to be operational in early 1996.

ORNL WAG 4 Seeps:
The WAG 4 Seeps Project is intended to reduce the off-site risk to human health and the environment from ^{90}Sr seeping from buried waste in WAG 4. Estimates derived from sampling events indicate that 22 percent of all ^{90}Sr discharging from ORNL originates at WAG 4. Investigations are under way to select the best remedial strategy. The ROD is due August 1996. A likely scenario is to hydrologically isolate the trenches and other areas suspected of contributing to the ^{90}Sr flux and installing multi-layer caps.

2186

1. Title and location of project:	Oak Ridge Operations Office Oak Ridge, Tennessee	2a. Project No. D/ND-1.4.12 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

ORNL WAG 5 Seeps:
The WAG 5 Seeps Removal Project is intended to remove greater than 90 percent of the ^{90}Sr from water collected at Seeps C and D. Construction of the two collection and treatment units was completed in November 1994 and operation was initiated in FY 1995. Seeps monitoring will continue in FY 1996.

ORNL In-Situ Vitrification Demonstration Pit 1:
The In-Situ Vitrification (ISV) technology demonstration at Pit 1 is intended to demonstrate the effectiveness of the vitrification process in a full-scale test. Also, this will establish the implementability of the ISV technique for the radioactive contaminated soil.

The purpose of the ER Program is to remediate, decontaminate, and decommission those DOE sites/facilities in compliance with applicable local, State, and Federal regulations within the DOE's 30-year timetable for completion. Legal requirements include those of the Atomic Energy Act, other Federal and State statutes and regulations, and DOE Orders, as well as the consent decrees, court orders, and agreements relevant to the ORR. The primary Federal regulations that drive the ER are CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (the ORR is on the Environmental Protection Agency's National Priorities List), and RCRA.

9. Method of Performance

RA: RIs will be performed by MMES personnel and subcontractors to LMES. Preparation of FSs, RA Plans, Records of Decisions, National Environmental Policy Act (NEPA) documentation, RA design and construction will be performed by DOE prime technical support contractors. LMES is the integrating contractor.

D&D: Planning, preparation of FSs and NEPA documentation will be performed primarily by subcontractors to MMES. S&M activities consist of multidisciplinary efforts coordinated by LMES and its subcontractors. These activities include periodic site inspections, maintenance of physical structures and containment system, and radiological surveillance. Construction and procurement will be accomplished utilizing fixed-price subcontract awarded on the basis of competitive bidding, where it is in the best interest of the Government.

2187

1. Title and location of project: Oak Ridge Operations Office
Oak Ridge, Tennessee

2a. Project No. D/ND-1.4.12

2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 855,284	$ 96,132	$ 88,600	$ 87,255	$ 323,306	$1,450,577
2. Decontamination & Dismantlement	197,580	27,257	25,645	27,002	96,008	373,492
3. Long-term S&M	9,296	0	0	0	0	9,296
4. Landlord	40,335	8,810	6,353	4,243	13,452	73,193
5. Compliance Oversight	0	1,175	1,980	0	0	3,155
b. Contingency	0	0	0	0	0	0
Total	$1,102,495	$ 133,374	$ 122,578	$ 118,500	$ 432,766	$1,909,713

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Fernald Environmental Management Project (FEMP) Fernald, Ohio	2a.	Project No. D-1.4.15
		2b.	Operating Expense Funded
3a.	Date assessment phase initiated: 4th Qtr. FY 1986	5.	Previous cost estimate:[a]
3b.	Duration of assessment phase: 14 years		Total Estimated Cost (TEC): See TPC
			Total Project Cost (TPC): $3,254,186
4a.	Date remediation phase starts: 2nd Qtr. FY 1990	6.	Current cost estimate: (through FY 2005)[b]
4b.	Date remediation phase ends: 4th Qtr. FY 2020		TEC: See TPC
			TPC: $4,450,262

7. Financial Schedule Defense Funded Only	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	Previous Years	$1,373,533	0	$ 1,373,533	$1,306,928
	FY 1995	229,550	0	229,550	275,669
	FY 1996	257,281	0	257,281	259,230
	FY 1997	261,800	0	261,800	379,342
	FY 1998	284,600	0	284,600	284,600
	FY 1999	293,700	0	293,700	293,700
	FY 2000	303,400	0	303,400	303,400
	FY 2001	313,700	0	313,700	313,700
	FY 2002	324,300	0	324,300	324,300
	FY 2003	319,600	0	319,600	319,600
	FY 2004	244,399	0	244,399	244,399
	FY 2005	244,399	0	244,399	244,399

[a]The previous cost estimates for the TPC only reflect costs for the period FY 1996-2001. This accelerated case will complete remediation (except for ground water) in 10 years instead of 25 years which will result in estimated savings of $1.4 billion (expressed in constant 1996 dollars).

[b]Current cost estimate reflects appropriated dollars and FY 1996-2005 estimates.

1. Title and location of project:	Fernald Environmental Management Project (FEMP) Fernald, Ohio	2a. Project No. D-1.4.15 2b. Operating Expense Funded

8. Project Description, Justification and Scope

The project scope includes Environmental Restoration, Waste Management, Landlord, Decontamination and Dismantlement (D&D), as well as all construction activities that were previously separate line items or General Plant Projects (GPP). In FY 1992, the FEMP Major System Acquisition (MSA) scope was revised to include all site activities, with the exception of EM-50 Technology Development and Defense Programs Materials Disposition. This project includes the remediation activities at the FEMP from the start of the remedial investigation/feasibility study (RI/FS) through the completion of the full remediation of the site in FY 2005 based on the $276 million 10-year accelerated case.

The purpose of the project is to remediate the 1,050 acre FEMP site, while ensuring protection of the public health, worker health and safety, and the environment. The site is divided into five operable units (OUs), each of which will have its own Record of Decision (ROD). The remedial design/remedial action phase of this project was started in FY 1989 with initiation of the Conceptual Design Report for Waste Pit 5 of OU1. The details for site remediation will not be determined until the issuance of the RODs.

Waste treatment facilities to include vitrification and decontamination will be constructed in support of the remediation efforts of the FEMP.

The FEMP MSA is consistent with the Environmental Restoration Program Work Breakdown Structure (WBS). The Activity Data Sheets are grouped as summary subprojects consistent with the WBS as follows: Remedial Actions, Landlord, Treatment/Storage/Disposal (TSD) Facilities, and Program Management Support. The subproject level divides the remedial action work into five OUs, which are governed by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Amended Consent Agreement (CA) between the Department of Energy (DOE) and the United States (US) Environmental Protection Agency (EPA). The TSD Facilities include the waste management activities and Resource Conservation and Recovery Act (RCRA) facility closures. The landlord activities include environmental monitoring and base services. The program management and support activities include litigation activities and regulatory oversight.

Landlord funding will support the following: applicable DOE Order requirements, hazards abatement, safety analysis, environmental monitoring, permitting activities, training, engineering support, landlord facilities, and base program services, and their support. The major direct tasks to be accomplished include: asbestos removal; facilities Occupational Safety and Health Act (OSHA) upgrade; nuclear criticality and system safety programs; air, water, and soil sampling and analysis; continuation of the environmental monitoring program; permitting actions; continued site support of training; and support projects. The landlord facilities base program services include the continuation of basic site services required for daily operations such as utilities and maintenance, site cleanup and housekeeping, and the operational readiness review program.

During FY 1996 construction projects will include boiler house relocation cafeteria up grade (will be used for training purposes) and the ongoing upgrade of the public water supply.

1. Title and location of project:	Fernald Environmental Management Project (FEMP) Fernald, Ohio	2a. Project No. D-1.4.15
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The FEMP MSA includes several projects that had previously been separate projects. The Environmental, Health and Safety Improvements line item which is now recast into the FEMP MSA, provides a series of improvements that will minimize the potential for transfer of radionuclides; and minimize the emission of toxic gases and releases of hazardous wastes to ensure that site activities do not pose a threat to the public and the environment. The Utilities Life Extension Phase I project, the Production and Radiological Improvements, Productivity Retention Program and GPPs are just a few examples of site line item activities that have been recast into the FEMP MSA.

OU1: Waste pits 1-6, clearwell, burnpit, berms, liners and soil within the OU boundary.
OU2: Flyash piles, South Field Disposal Areas, lime sludge ponds, Solid Waste Landfill, berms, liners, and soil within the OU boundary.
OU3: All man-made structures and facilities at the FEMP, above and below ground. (Facilities specifically excluded from OU# are: K-65 Area; Waste Storage Pits; Flyash Piles).
OU4: Silos 1, 2, 3, and 4, berms, decant tank system, soils and any buried concrete beams surrounding Silos 1 and 2, and perched water (encountered during remediation).
OU5: Ground water, surface water, soil not included in the definitions of OUs 1-4, sediments, flora, and fauna.

Final remediation of soils will be accomplished under OU5; all structures under OU3.

The expected cost of the identified construction projects is as follows:

Construction Project	TPC	Prev.	FY 1995	FY 1996	FY 1997	Outyear	Construction Start - Completion Dates
1. Advanced Waste Water Treatment	$53,075	$50,742	$ 1,843	$ 490*	$ 0	0	* Operating in FY 1996
2. South Plume Project	12,784	12,784	0	0	0	0	
3. Sanitary Sewer Upgrade	0	0	0	0	0	0	
4. Utility Life Extension Project	29,172	8,812	20,360	0	0	0	
5. Telecommunications	2,718	318	2,400	4	0	0	
6. Public Water Supply	1,088	257	831	50	0	0	
7. Plant Wide Storm Sewer Improvements	580	580	0	0	0	0	
8. General Site Sump Improvements	1,724	1,591	133	0	0	0	
9. Thorium Overpacking Structure	1,000	1,000	0	0	0	0	
10. Plant 1 Pad	4,885	3,000	1,885	0	0	0	
11. Cafeteria Upgrade	0	0	0	1,185	0	0	
12. Boiler Relocation	0	0	0	4,535	0	0	
Total	$107,026	$79,084	$27,452	$ 6,264	$ 0	$ 0	

2191

1. Title and location of project:	Fernald Environmental Management Project (FEMP) Fernald, Ohio	2a. Project No. D-1.4.15 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The purpose of the FEMP is to successfully complete Environmental Restoration Programs at the Fernald Site. A principal component of the project is the implementation of remedial actions at Fernald consistent with the terms of the Amended CA between the DOE and EPA. In support of this component of the project, the RI/FS which evaluates viable remedial action alternatives to address identified environmental concerns is essentially complete. Specific remedial actions for Fernald will be defined in the RODs resulting from the RI/FS process for each OU. There are signed or approved RODs which document remedy selection for four of the five OUs with the fifth ROD being complete in early FY 1996.

For planning purposes, a remedial action scenario has been assumed, based on the $276 million 10-year accelerated case, involving on-site disposal of waste inventories, resulting in an estimated TPC through FY 2005 of $4,475,686. This TPC also includes the related remediation activities to be accomplished at the site through FY 2005, such as waste management, landlord, D&D, and construction projects. Under the accelerated schedule, all remediation activities will be completed by FY 2005; however, ground water monitoring and pumping will continue after disposal cell completion through FY 2020.

The FEMP MSA was formulated to provide a structured framework for allocating the necessary resources to complete an Environmental Restoration Program at Fernald in accordance with environmental regulatory agreements and decrees and pertinent DOE Orders. Regulatory agreements in place at Fernald include the Federal Facility Compliance Agreement (FFCA), an Amended CA under CERCLA Sections 120 and 106(a) with the US EPA, an Amended Consent Decree with the State of Ohio, and an FFA with the EPA for control and abatement of Radon-222 emissions.

On March 1, 1985, the EPA issued a Notice of Noncompliance to the DOE pertaining to major concerns over potential environmental impacts associated with past, present, and future operations at Fernald. On July 18, 1986, DOE entered into a cooperative agreement with the EPA, known as the FFCA, to ensure compliance with environmental statutes and regulations at Fernald. On November 21, 1989, the Fernald site was placed on the CERCLA National Priorities List (NPL) establishing a statutory framework for the conduct of both the RI/FS and resultant remedial actions. To accommodate the statutory requirements as defined in Section 120 of CERCLA pertaining to NPL-listed Federal facilities, a CA was entered into by the EPA and DOE in July 1990 to establish a formal framework for the completion of the RI/FS process and implementation of removal and remedial actions. The CA superseded the CERCLA section of the 1986 FFCA. On September 20, 1991 an Amended CA was established. On December 19, 1991, the Amended CA became effective, subsequent to the resolution of public comments.

The overall project objectives for the FEMP MSA are to:

1. Effectively implement the requirements of the Amended CA (September 1991) with the US EPA including, but not limited to, completion of the RI/FS process and identified remedial and removal actions.
2. Effectively implement the requirements of the Consent Decree (December 1988) and the Amended Consent Decree (January 1993) with the State of Ohio.

2192

1. Title and location of project:	Fernald Environmental Management Project (FEMP) Fernald, Ohio	2a. Project No. D-1.4.15
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

3. Effectively implement the requirements of the FFA with the EPA for control and abatement of Radon-222 emissions.
4. The implementation of Environmental Restoration Programs consistent with applicable Environmental statutes, regulatory agreements, and DOE Orders.
5. Conduct long-term environmental monitoring and surveillance program at Fernald to ensure protection of human health and the environment, and the continued efficient performance of Environmental Restoration Construction activities.
6. Complete safe shutdown activities at Fernald to place former production facilities into a safe, shutdown condition.
7. Provide base facility support services including health and safety, medical surveillance, emergency response, utilities, maintenance, grounds keeping, security, etc., in support of the efficient and safe implementation of site restoration.
8. The completion of the RI/FS process, removal and remedial actions, and other site operations in a manner consistent with applicable requirements.
9. Supplement the existing technology base pertaining to the environmental restoration to support both the efficient performance of the FEMP activities and benefit restoration efforts at other sites.
10. Record plans, procedures, costs and other data so that knowledge and experience gained during the course of the restoration and D&D efforts at Fernald will be readily available to other individuals engaged in restoration efforts, whether sponsored by federal agencies or the private sector.
11. Risk Reduction - Identify the reductions in risk to human health that will occur as a consequence of cleanup actions at the FEMP and identify the reductions in total radiological activities that accompany the site's environmental restoration and facility D&D efforts.

Near-term actions are carried out consistent with applicable guidance criteria and considerations set forth in CERCLA, RCRA, National Environmental Policy Act (NEPA), State of Ohio regulatory requirements, and DOE Orders. Actions undertaken will meet identified applicable or relevant and appropriate requirements (ARARs) and will contribute to the efficient performance of anticipated final remedial actions.

Remedial actions must fulfill the technical requirements, pertinent DOE Orders and regulatory guidance and considerations set forth in the National Contingency Plan, CERCLA, and NEPA. Specific technical-based remedial action goals include compliance with ARARs, to be considered requirements (TBCs), and risk based cleanup standards. Promulgated State regulations identified to be more stringent than comparable Federal standards must similarly be attained. In the event that pertinent ARARs cannot be identified or are deemed not protective, non-promulgated guidance, policies, or other technical specifications can be adopted as TBCs. In the case where multiple contaminants and exposure pathways exist, risk based remedial goals will be established.

In addition, an evaluation has been made of the risk reduction benefits that are likely to occur as the FEMP's remedial activities proceed forward. The specific objectives of this evaluation are twofold: 1) to identify the step-wise reduction in risk to human health that will occur as a consequence of cleanup action contemplated for the site; and 2) to identify the reduction in total radiological activity that accompany the site's environmental restoration and facility D&D efforts.

2193

1. Title and location of project:	Fernald Environmental Management Project (FEMP) Fernald, Ohio	2a. Project No. D-1.4.15
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Fernald has begun implementation of its cleanup remedies; indeed, construction has begun on a vitrification pilot plant, which will turn radioactive sludges into a glass-like form. CERCLA requires that remedial action begin within 15 months of the date of the RODs are signed, so actual cleanup activities will be underway for the entire site in a matter of months. In addition, 30 short-term removal actions have been completed or are now in progress at Fernald. These actions are designed to eliminate or control contamination sources prior to final cleanup.

9. Method of Performance

Project Management in FY 1992 was performed by a Management and Operating Contractor. In FY 1992, the performance based Contractor (Environmental Restoration Management Contractor (ERMC)) for the FEMP was selected and completed transition for Project Management on December 1, 1992. Under the ERMC, design and inspection will be performed by an architect-engineer. Construction and procurement will be accomplished by the construction manager, integrating contractor's subcontractor, utilizing fixed-price subcontracts to the maximum extent feasible, awarded on the basis of competitive bids.

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-05) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 351,620	$ 154,209	$ 196,388	$ 176,942	$ 1,514,166	$ 2,393,325
2. Decontamination & Dismantlement	104,329	14,104	18,520	28,494	348,800	514,247
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	917,584	61,237	42,373	56,364	465,132	1,542,690
5. Compliance Oversight	0	0	0	0	0	0
b. Contingency	0	0	0	0	0	0
Total	$ 1,373,533	$ 229,550	$ 257,281	$ 261,800	$ 2,328,098	$ 4,450,262

NOTE: Landlord category includes: Landlord, Program Management, DOE-FN Costs (8-B1), and ongoing litigation.

2194

1. Title and location of project:	Fernald Environmental Management Project (FEMP) Fernald, Ohio	2a. Project No. D-1.4.15 2b. Operating Expense Funded

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the OSHA of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Battelle Columbus Laboratories Decommissioning Project (BCLDP) Columbus, Ohio	2a.	Project No. D/ND-1.4.14
		2b.	Operating Expense Funded
3a.	Date assessment phase initiated: 4th Qtr. FY 1986	5.	Previous cost estimate:
			Total Cost Estimate (TEC): See TPC
3b.	Duration of assessment phase: 10 years		Total Project Cost (TPC): DOE $187,953
			Battelle 18,779
4a.	Date remediation phase starts: 2nd Qtr. FY 1989	6.	Current cost estimate: (through FY 2001)
			TEC: See TPC
4b.	Date remediation phase ends: 4th Qtr. FY 2002		TPC: DOE $146,531*
			Battelle 14,324

7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	Previous Years Defense	$ 34,551	$ 0	$ 34,551	$ 34,527
	Non-Defense	49,403	0	49,403	49,226
	Total	83,954	0	83,954	83,753
	FY 1995 Defense	8,215	0	8,215	1,824
	Non-Defense	16,807	0	16,807	20,927
	Total	25,022	0	25,022	22,751
	FY 1996 Defense	8,192	0	8,192	1,449
	Non-Defense	11,568	0	11,568	13,251
	Total	19,760	0	19,760	14,700

*Current cost estimate reflects appropriated dollars and FY 1996-2001 target funding.

21196

1. Title and location of project:	Battelle Columbus Laboratories Decommissioning Project (BCLDP) Columbus, Ohio	2a. Project No. D/ND-1.4.14			
		2b. Operating Expense Funded			

7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	FY 1997 Defense	$ 482	$ 0	$ 482	$ 500
	Non-Defense	3,500	0	3,500	3,500
	Total	3,982	0	3,982	4,000
	FY 1998 Defense	424	0	424	424
	Non-Defense	3,039	0	3,039	3,039
	Total	3,463	0	3,463	3,463
	FY 1999 Defense	423	0	423	423
	Non-Defense	3,030	0	3,030	3,030
	Total	3,453	0	3,453	3,453
	FY 2000 Defense	422	0	422	422
	Non-Defense	3,028	0	3,028	3,028
	Total	3,450	0	3,450	3,450
	FY 2001 Defense	420	0	420	420
	Non-Defense	3,027	0	3,027	3,027
	Total	3,447	0	3,447	3,447
	Defense	$ 53,129	$ 0	$ 53,129	$ 39,989
	Non-Defense	93,402	0	93,402	99,028
	Total	$ +146,531	$ 0	$ +146,531	$ 139,017

2197

1. Title and location of project:	Battelle Columbus Laboratories Decommissioning Project (BCLDP) Columbus, Ohio	2a. Project No. D/ND-1.4.14 2b. Operating Expense Funded

8. Project Description, Justification and Scope

On April 16, 1943, the Battelle Memorial Institute (BMI) entered into Contract No. W-7405-ENG-92 with the Manhattan Engineer District (MED) to perform atomic energy research and development (R&D) activities. Since that time, BMI has continuously performed R&D work at its facilities, under the contract for the MED and its successor agencies (Atomic Energy Commission, Energy Research and Development Administration, DOE). The fifteen buildings (described below), or portions thereof, which became radioactively-contaminated as a result of performance of work under the Government contract, are to be decontaminated and released to BMI under the DOE's Environmental Management Program. The buildings are owned by BMI, and the facility retains an active Nuclear Regulatory Commission (NRC) license for possession of special nuclear material.

The type and extent of contamination varies from facility to facility, being dependent on the nuclear work previously performed. Most of the contamination at the King Avenue site is due to uranium, thorium, and associated daughter products. This also applies to the South Area of the West Jefferson Site. The transuranic, mixed fission products, and activation product contamination are confined to the North Area of the West Jefferson Site.

The BCLDP will decontaminate all buildings and surrounding areas that have been used for Government sponsored nuclear research and return them to the owner, BMI, in a condition suitable for use without radiological restrictions. A total of 15 buildings and surrounding land areas are included in the BCLDP. Nine of the buildings involved in the BCLDP are located in the city of Columbus, Ohio, on the King Avenue campus. This site is bounded by the Ohio State University, a high-density residential area, and a river which passes through the city. Several commercial and industrial areas are within 1/2 mile of the facility. The nuclear research, which was performed in the nine buildings, included processing and machining of enriched, natural, and depleted uranium and thorium, fuel element fabrication, radiochemical analyses, and powder metallurgy studies.

The remaining six buildings involved in the BCLDP are located at the West Jefferson research site. This rural site, located in West Jefferson, Ohio, is about 17 miles west of Columbus. The West Jefferson Site occupies approximately 1,100 acres and includes three areas: (1) the Engineering Area in the southeastern portion, (2) the Experimental Ecology Area in the eastern-central portion, and (3) the Nuclear Sciences Area in the northern portion.

The estimated remaining square footage to be decontaminated totals approximately 546,000 square feet: 41,000 square feet at King Avenue campus and 505,000 square feet at the West Jefferson campus. The total encompasses over 400 rooms/areas at the two campuses.

2198

1. Title and location of project:	Battelle Columbus Laboratories Decommissioning Project (BCLDP) Columbus, Ohio	2a. Project No. D/ND-1.4.14
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Decontamination and Decommissioning (D&D):

The effort involves the ongoing D&D of 9 remaining of 15 total BMI buildings, or parts thereof, and soil areas containing radioactive contamination from Federal programs that were conducted at BMI facilities in Columbus and West Jefferson, Ohio. Effort includes planning and direct oversight of D&D operations, removal of contaminated items from identified laboratory and work areas, characterization of support areas, removal of loose and fixed radioactive contamination from interior building surfaces, excavation and removal of contaminated drains and soils, transfer of contaminated materials to the waste processing area(s). Effort also provides for radiological surveillance and control of contaminated areas during active D&D. As D&D is completed in each building, verification surveys will be conducted, and the building will be released to BMI for use without radiological restrictions. It also provides for restoration payments to be made as settlement to BMI, a private owner, to return the facilities for use without any radiological restrictions.

Program Management:

Provides for overall support project management of the BCLDP decontamination effort (a Major Project) in compliance with the requirements of DOE Orders 1332.1A and 4700.1 and DOE Notice 4700.5. This covers planning and reporting related to permitting regulatory and environmental compliance, implementation of Defense Nuclear Facilities Safety Board 90-2 requirements and order/code compliance, and outreach efforts under the project public participation plan.

DOE has accepted responsibility for the cost of decontaminating the facilities as part of the termination of Contract W-7405-ENG-92. As part of the agreement, BMI will contribute 10% towards the TPC. In order to terminate part of its NRC license, BMI will also demonstrate compliance with NRC requirements for facility D&D.

The overall project objective is to decontaminate and dismantle the BMI facilities in a safe, technically sound, and cost effective manner, returning these facilities to the owner (BMI) in a condition suitable for use without radiological restrictions per limits defined in NRC Reg. Guide 1.86, and in keeping with the principles of As Low As Reasonably Achievable. This project will fulfill the requirements of the Mission Need Statement by accomplishing the following objectives:

1. To protect the public health and safety in accordance with DOE's responsibility.
2. To perform the work consistent with safety, security, and environmental protection requirements, and subject to congressional authorization and appropriations.

2199

1. Title and location of project:	Battelle Columbus Laboratories Decommissioning Project (BCLDP) Columbus, Ohio	2a. Project No. D/ND-1.4.14
		2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

3. To conduct D&D activities in accordance with applicable DOE Orders, Federal and State laws and regulations, and consistent with any interagency agreements.
4. To discharge DOE's responsibility under Contract No. W-7405-ENG-92.

The facilities present potential risk to on-site and public safety, health, and environment due to aging building systems and proximity to population. Surveillance and maintenance (S&M) activities are essential to assure adequate containment and site control until remedial actions have been completed and the site is released. At any reduced funding levels, project's activities will be impacted by the need to maintain the level of S&M conducted in individual facilities, especially the JN-1 hot cell facility. Outyear D&D activities will be impacted by the need for additional levels of environmental monitoring and personnel protection conducted in the facilities. Deferment/delay beyond the current baseline schedule will also result in increased cost to protect the health and safety of on-site workers and the general public. Reduced project staff and the inability of the project to fully comply with all DOE requirements in a timely fashion will also occur as a result of reduced funding levels.

Regulatory drivers include: Government contractual obligations as part of contract W-7405-ENG-92; DOE Orders 5400 series for environment, safety, and health; 10 CFR Parts 19, 20, 21, 30, 40, and 70 for compliance with BMI's NRC license (SNM-7) requirements; 49 CFR Parts 171-173, 177, and 178; DOE Order 5480.3 for waste packaging and transportation; 10 CFR Part 1021 National Environmental Policy Act Compliance; 40 CFR Parts 116, 117, 129, 261-265, 268 and 761 Environmental Protection Agency Regulations for Designation and Control of Hazardous Substances and Mixed Waste; 29 CFR Parts 1910 and 1929 Occupational Safety and Health Act (OSHA) Regulations; and DOE Order 5820.2A Radioactive Waste Management.

Specific activities to be accomplished in FY 1997 include:

- Provide only core mandatory S&M activities at the West Jefferson facilities.
- Provide required environmental monitoring and surveillance at the West Jefferson site.
- Provide required indirect support to S&M activities, to include: Radioanalytical Laboratory services, laundry operations, respiratory protection, training, waste management, and dosimetry/bioassay services.
- Provide minimal level project and program management support to the project.

9. Method of Performance

The BCLDP contract administration and specific legal functions are being executed by DOE-CH. The project will be transferred to the DOE-OH in FY 1997. The BCLDP has special circumstances that exist as a result of the closeout of the long-standing Contract No. W-7405-ENG-92. BMI has agreed to participate in a cost-sharing arrangement for the project.

2200

1. Title and location of project:	Battelle Columbus Laboratories Decommissioning Project (BCLDP) Columbus, Ohio	2a. Project No. D/ND-1.4.14 2b. Operating Expense Funded

9. Method of Performance (continued)

The DOE-CH, with DOE-Headquarters (HQ) concurrence, has concluded that it is in the best interest of the Government to have BMI serve as the Dismantlement Operations Contractor (DOC). This is based on the nature of the action under Contract No. W-7405-ENG.-92 (a closeout of the contract), the cost-sharing arrangement with BMI, the agreement on no fee for BMI services, the logistics of the physical situation; i.e., facility owned and operated by BMI, the complicated nature of the joint liability of BMI and the Government, and agreement with BMI to use subcontractors as appropriate. All contract arrangements will be subject to the appropriate review and approvals required by applicable DOE Orders. The DOC will direct the actual decommissioning activities, and will negotiate and award competitively bid, fixed-price subcontracts, as appropriate.

BMI is currently operating under a modification to existing Contract No. W-7405-ENG-92. This modification authorizes BMI to provide S&M of the contaminated facilities in addition to doing the planning and conducting active D&D. This modification was entered into under a cost sharing arrangement. The Government is reimbursing BMI for 90% of incurred D&D costs, except for S&M which is 100% reimbursable.

In order to accurately characterize the BMI site with regard to contamination, and to independently corroborate data made available by BMI, Argonne National Laboratory (ANL) was authorized to provide technical assistance for DOE in the form of cursory site characterization, sampling, and analysis. Under an existing agreement with DOE, ANL was awarded this cost reimbursable segment based on technical expertise, location, and cost. This effort was completed in 1989.

During and at the completion of each element of the D&D activities, the services of an Independent Verification Contractor (IVC) will be required to verify that the work has been completed successfully. The IVC will conduct sampling, testing, and analysis to verify that the established release criteria have been met. The IVC contract will be awarded, funded, and managed by DOE-HQ.

2201

1. Title and location of project: Battelle Columbus Laboratories Decommissioning Project (BCLDP) Columbus, Ohio

2a. Project No. D/ND-1.4.14

2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 28,085	$ 0	$ 0	$ 0	$ 0	$ 28,085
2. Decontamination & Dismantlement	55,869	25,022	19,760	3,982	13,813	118,446
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	0	0	0	0	0
b. Contingency	0	0	0	0	0	0
Net Fed Contribution - Total Project Cost	$ 83,954	$ 25,022	$ 19,760	$ 3,982	$ 13,813	$ 146,531
Non Federal Contribution (@10%)	8,395	2,157	1,991	400	1,381	14,324
Total	$ 92,349	$ 27,179	$ 21,751	$ 4,382	$ 15,194	$ 160,855

NOTE: The BCLDP will be transferred to the DOE-OH in FY 1997. The costs incurred by the participating contractors through FY 1996 will remain on the DOE-CH FIS.

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of OSHA of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

2202

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: RMI Decommissioning Project (RMIDP) Ashtabula, Ohio	2a. Project No. D-1.4.20 2b. Operating Expense Funded	
3a.	Date assessment phase initiated: 3rd Qtr. FY 1993	5. Previous cost estimate: Total Estimated Cost (TEC):	See TPC
3b.	Duration of assessment phase: 2 years	Total Project Cost (TPC):	$ 29,297
4a.	Date remediation phase starts: 3rd Qtr. FY 1996	6. Current cost estimate: (through FY 2001) TEC:	See TPC
4b.	Date remediation phase ends: 2nd Qtr. FY 2002	TPC:	$130,325 *

7. Financial Schedule
Defense Funded Only

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
Previous Years	$ 24,300	$ 0	$ 24,300	$ 23,500
FY 1995	5,350	0	5,350	5,800
FY 1996	9,332	0	9,332	11,124
FY 1997	20,284	0	20,284	21,040
FY 1998	17,855	0	17,855	23,326
FY 1999	17,781	0	17,781	23,326
FY 2000	17,745	0	17,745	23,326
FY 2001	17,678	0	17,678	23,326

NOTE: The RMIDP was transferred to the Ohio Operations Office (DOE-OH) effective April 1, 1995. The costs incurred by the participating contractors in the estimated amount of $23,500,000 through FY 1994 will remain on the Chicago Operations Office (DOE-CH) Financial Information System (FIS). However, these costs are included on this data sheet for completeness.

*Current cost estimate reflects appropriated dollars and FY 1996-2001 target funding.

1. Title and location of project:	RMI Decommissioning Project (RMIDP)	2a. Project No. D-1.4.20
	Ashtabula, Ohio	2b. Operating Expense Funded

8. Project Description, Justification and Scope

In 1961, the original buildings of the existing RMI Titanium Company, Inc. (RMI) were modified to house a Government-owned 350-ton extrusion press and process support equipment. From 1962 through 1987, RMI operated the press under prime contract to the U.S. Department of Energy (DOE). In 1987, RMI became a subcontractor to Westinghouse Materials Company of Ohio. During this period, the major mission of RMI was the production of depleted, natural, and slightly enriched extrusions and closed-die forgings to support the DOE manufacturing of fuel and target materials for the Hanford and Savannah River reactors, as well as other sites such as Y-12. Work was also performed for the commercial sector and the U.S. Department of Defense under a Nuclear Regulatory Commission (NRC) license. Through these years of handling, extruding, forging, machining, and processing uranium at the RMI facility, portions of the site and immediately adjacent offsite areas have become contaminated. Due to reduced demand for DOE uranium extrusions, RMI ceased all extrusion activities in 1990 in accordance with DOE direction, and changed its mission to remediation of the facility under the DOE Environmental Restoration Program. The facility retains an active NRC license (SMB-602) for the "possession only" of both natural and depleted uranium.

The RMIDP includes all those activities necessary to the successful decontamination and dismantlement (D&D) of RMI's physical facilities and the affected environment to permit unrestricted use, and to investigate and remediate the Resource Conservation and Recovery Act (RCRA) Corrective Action Management Unit (CAMU). DOE is also liable for a portion of the costs to investigate and remediate a Comprehensive Environmental Response Compensation and Liability Act Superfund site where RMI is a Potentially Responsible Party.

The RMIDP facility is located in a sparsely populated, highly industrialized area of Ashtabula County, Ohio. Several chemical production and metal conversion facilities are located nearby. The site is situated approximately two miles northeast of the City of Ashtabula, one mile south of Lake Erie, and 500 feet south of Fields Brook. Presently, the facility consists of 25 buildings and occupies approximately 7 acres of the 26 acre plant site. Of the 25 buildings on the site, RMI owns 13 and DOE owns the remaining 12 and most of the plant equipment. All land at the site is owned by RMI. All facility buildings are surrounded by a perimeter security fence and access is controlled by a manned guard house.

The contamination of facilities, soils, and ground water with slightly enriched uranium, thorium-234, technetium-99, and solvents has been identified. Radioactive material has been deposited on interior and exterior surfaces of most site buildings and on associated production equipment. Past production operations at the RMI facility resulted in the deposition of radioactive material on surface soil over portions of the plant area and on some adjacent offsite areas. The full extent and level of this radioactive contamination will be characterized.

Past operations also resulted in ground water being contaminated with both radiological and nonradiological contaminants. The extent and level of this ground water contamination will continue to be investigated and will be remediated in order to achieve the decommissioning objective. Effort also included shipment and disposal of contaminated wastes at designated sites.

2204

1. Title and location of project:	RMI Decommissioning Project (RMIDP)	2a. Project No. D-1.4.20
	Ashtabula, Ohio	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The total floor area of the buildings is 115,304 square feet. The highest building is the main plant high bay which is approximately 53 feet high. All other buildings are approximately 20 feet high or less. The estimated volume of contaminated soil to be excavated form onsite and offsite areas is approximately 31,000 cubic yards. The CAMU includes the former evaporation pond, an associated contaminated ground water plume, and the seepage pond 300 feet north of the RMI facility. The seepage pond is at the base of an escarpment which slopes into the floodplain of Fields Brook which runs 500 feet north of the facility. Fields Brook is a designated National Priorities List site.

RMI D&D Project Management (PM):

The PM effort involves the D&D and remediation of the RMI buildings, site and immediately adjacent offsite areas which have become contaminated as a result of work performed at the RMI facility near the City of Ashtabula, Ohio. Effort includes developing design basis for the D&D and remediation efforts, preparing work plans, selecting decontamination and remediation methods, implementing selected methods, and conducting final release surveys. In general, the decommissioning steps for the facility structures will be to remove process equipment and materials, followed by removal of building utilities and services, and then the demolition of the buildings structures.

The PM effort also includes maintenance of project management, project control, administration, and fees consistent with the contract and DOE Orders. It also includes management oversight and monitoring of the subcontractor activities. The specific activities in this category are in two elements: (1) project management, including project control, technical support, quality assurance, administration and training, outreach efforts under the project public participation plan, and technology development; and (2) site services, including surveillance and maintenance, equipment procurement, safeguards and security, and utilities.

The overall project objective is to: (1) decontaminate and decommission the RMI facilities and site for unrestricted use, and (2) remediate a CAMU under RCRA. The project also must fulfill DOE requirements for strategic planning, project management, and reporting; ensure that site workers are trained and medically supervised; and maintain the site in a safe, secure, and accessible condition in compliance with federal, state, and local environmental, safety, and health regulations. This project will fulfill the requirements of the Mission Need Statement by accomplishing the following objectives:

1. To perform a safe, timely, and effective cleanup to minimize contamination release to the environment and personnel exposure.
2. To optimize activities to minimize project duration and costs, consistent with health, safety, security, and environmental protection requirements.
3. To perform the work in accord with the applicable DOE Orders and Federal Regulations identified in the definitive contract between DOE and RMI dated September 30, 1993.
4. To eliminate DOE's contractual liabilities that DOE is obligated to close-out following completed activities of preceding contractors and to remediate and restore the site.

2205

1. Title and location of project:	RMI Decommissioning Project (RMIDP)	2a. Project No. D-1.4.20
	Ashtabula, Ohio	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Additionally, the D&D efforts at RMI are required to meet NRC mandates. In 1990, the NRC developed a Site Decommissioning Management Plan which included the RMI site. In 1992, the NRC published an action plan (57 FR 74) to ensure timely cleanup of these sites in an effective manner. Any funding reductions would produce impacts in meeting the NRC and the Environmental Protection Agency (EPA) expectations for completing decommissioning goals planned in FY 1997.

Environmental regulations are the primary drivers for much of the RMIDP work. RMI, as a NRC licensee is required to meet the requirements of 10 CFR (NRC and DOE requirements) in dealing with nuclear materials, as well as the requirements of 40 CFR (EPA) for environmental compliance issues, 29 CFR (Department of Labor) for worker safety and health, and 49 CFR (Department of Transportation) for packaging and shipping requirements.

Specific activities to be accomplished in FY 1997 include: initiate equipment disposition; initiate onsite soil remediation; initiate Area "c" soil remediation; and initiate CAMU soil remediation.

9. Method of Performance

The RMIDP contract administration and specific legal functions are being executed by the DOE-OH. Primary participants in the RMIDP are the EM-40 Environmental Restoration Program Office in Washington, D.C., the DOE-OH, the DOE RMI Decommissioning Project Office (RMIDPO), and the contractor staff at the RMI Ashtabula, Ohio site. At the Ashtabula RMI site, the site owner and operator is RMI. DOE-OH/RMI will be assisted by a technical support contractor.

RMIPO's acquisition strategy for Environmental Management work at the RMI site is to use the prime contractor as the remediation contractor. As the remediation contractor, RMI manages the day-to-day activities at the site. As the property owner and the remediation contractor, RMI is legally responsible for completing the cleanup. DOE has a contractual relationship to the property owner to facilitate site remediation following previous DOE activities. The remediation contractor will use basic management practices to plan and control the project, and will negotiate and award competitively bid, fixed-price subcontracts for the actual remediation work, as much as practicable.

A technical support services contractor will be utilized under a Cost Plus Fixed Fee basic operating contract with DOE-OH. As support contractor, they will provide the following services to the RMIDPO site office: project management, cost control, budget, schedule, planning, documentation control, technical oversight include quality assurance, radiation protection, safety, and other support services to the OH project manager as required. OH will utilize the DOE support contractor to assist the OH Project Manager in overviewing the performance of the remediation contractor and subcontractor. At the completion of specific elements of the D&D activities, an Independent Verification Contractor will verify that the work has been completed satisfactorily.

2206

1. Title and location of project: RMI Decommissioning Project (RMIDP)
Ashtabula, Ohio

2a. Project No. D-1.4.20

2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 0	$ 0	$ 0	$ 0	$ 2,251	$ 2,251
2. Decontamination & Dismantlement	24,300	5,350	9,332	20,284	68,808	128,074
3. Long-term S&M	0	0	0	0	0	0
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	0	0	0	0	0
b. Contingency	0	0	0	0	0	0
Total	$ 24,300	$ 5,350	$ 9,332	$ 20,284	$ 71,059	$ 130,325

NOTE: The RMIDP was transferred to DOE-OH effective April 1, 1995. The costs incurred by the participating contractors in the amount of $23,500,000 through FY 1994 will remain on the DOE-CH FIS. However, these costs are included on this data sheet for completeness. The amounts through FY 1994 are listed below by contractor:

RMI	$17,208
Parsons	4,015
MacTec	2,230
CEGA	47

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Richland Environmental Restoration Project Richland, Washington	2a.	Project No. D-1.4.10
		2b.	Operating Expense Funded
3a.	Date assessment phase initiated: 1st Qtr. FY 1988	5.	Previous cost estimate:
			Total Estimated Cost (TEC): See TPC
3b.	Duration of assessment phase: 8 years [a]		Total Project Cost (TPC): $1,680,771
4a.	Date remediation phase initiated: 2nd Qtr. FY 1991	6.	Current cost estimate: (through FY 2001)
			TEC: See TPC
4b.	Date remediation phase ends: FY 2047		TPC: $1,746,716 [b]

7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
Defense Funded Only	Previous Years	$ 802,473	0	$ 802,473	$ 782,285
	FY 1995	177,081	0	177,081	174,892
	FY 1996	157,433	0	157,433	171,811
	FY 1997	130,799	0	130,799	130,799
	FY 1998	120,362	0	128,362	128,361
	FY 1999	119,847	0	119,847	119,847
	FY 2000	119,596	0	119,596	119,596
	FY 2001	119,125	0	119,125	119,125

[a] While assessment as a separate phase will be completed in FY 1995, it will continue to be done on an "as needed" basis to support remediation throughout the life of the project.

[b] Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

2208

1. Title and location of project:	Richland Environmental Restoration Project	2a. Project No. D-1.4.10
	Richland, Washington	2b. Operating Expense Funded

8. Project Description, Justification and Scope

The overall Richland Environmental Restoration (ER) Project mission includes the identification, assessment, and remediation of the Hanford Site's past-practice waste sites, which have been inactive since March 1, 1987. The identification, transfer and acceptance, surveillance and maintenance (S&M), assessment, and decontamination and decommissioning (D&D) of surplus facilities, as well as post-remediation/post-D&D S&M fall within the project. The ER mission includes the construction and operation of disposal facilities, and the management and support systems necessary to produce quality products.

On May 15, 1989, the U.S. Department of Energy (DOE), the U. S. Environmental Protection Agency (EPA), and the Washington State Department of Ecology (Ecology) signed an agreement to remediate radioactive, chemical, and mixed waste at the Hanford Site over the next 30 years. This agreement is the Hanford Federal Facility Agreement and Consent Order, or Tri-Party Agreement, commonly known as the TPA (Ecology et al. 1992). It contains a blueprint for remediation and uses enforceable milestones to keep the program on schedule.

The main focus has shifted from assessment activities to the acceleration of remedial actions. Emphasis is on the treatment or containment of contaminants in groundwater in the 100 and the 200 Areas; 100 Area remediation to meet unrestricted use criterion by 2018; on-site disposal of remediation waste within the 200 area; 300 area and 1100 area remediation; 200 Area stabilization/containment of contamination; minimizing hazards posed by 200 Area surplus facilities; and stabilizing 100-N Area facilities to minimize potential spread of contamination. Remediation goals will consider the major recommendations emerging from the Hanford Future Site Uses Working Group.

The principal regulatory requirements are the Resource Conservation and Recovery Act (RCRA); the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); the National Environmental Policy Act (NEPA); the TPA; and the Atomic Energy Act. The Hanford ER Program is planned and executed in accordance with applicable EPA and State guidelines and applicable DOE Orders. The principal D&D regulatory requirements are found in the NEPA, the Clean Air Act, the Occupational Health and Safety Act, and U.S. Department of Energy Headquarters and DOE-Richland Operations Office (DOE-RL) Orders 5820.2A, Radioactive Waste Management.

6209

1. Title and location of project:	Richland Environmental Restoration Project	2a. Project No. D-1.4.10
	Richland, Washington	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Additional Federal standards may be used in developing site-specific remediation levels, such as those derived from U.S. Nuclear Regulatory Commission standards, the Clean Water Act, the Safe Drinking Water Act, and the Toxic Substances Control Act. In addition, CERCLA identifies the circumstances under which State standards may be substituted for Federal standards -- if a State imposes more stringent requirements.

A. SUMMARY SUBPROJECT OVERVIEW

Remedial Actions There are 22 subprojects, including remediation activities in the 100, 200, and 300 areas. These 22 subprojects encompass the assessment and remediation of all 78 past-practice OUs in the Hanford ER program, including groundwater.

The following are specific elements of the OU work scope.

- Manage all work associated with the remediation to include planning, organizing, coordinating, controlling, and directing the work.
- Prepare and update the baseline cost estimates, schedules, and the Activity Data Sheets (ADSs).
- Prepare the task documentation required to plan and complete the specific phase, or combination of phases, of the assessment and remediation process.

D&D Facilities: Includes four active subprojects -- Asbestos Abatement, 100 Area D&D (UB), 200 Area D&D, and N Reactor. At the 300 Area, no D&D activities are currently planned.

Program Management and Support includes two subprojects. The first, Program Management and Support, contains the overall program management for both remedial actions and D&D. It includes quality assurance support; community relations planning support, systems engineering and strategic planning, training, general technical support, including the development of the Hanford Remedial Action Environmental Impact Statement (EIS); laboratory support; and facility, systems, and general infrastructure support. The second subproject covers DOE-RL and compliance/regulatory oversight (State of Washington).

Long Term S&M includes only post-closure or post-remediation monitoring activities.

There are no Landlord activities associated with the Hanford ER Program.

2210

1. Title and location of project:	Richland Environmental Restoration Project	2a. Project No. D-1.4.10
	Richland, Washington	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Treatment, Storage, and Disposal (TSD) includes one subproject, the Hanford Environmental Restoration Disposal Facility (ERDF), for design and construction of a disposal facility required for waste generated from ER remediation activities. The ERDF is a large-scale, RCRA-compliant, disposal unit for permanent waste management of remediated, containerized and bulk waste from past-practice sites.

The ERDF consists primarily of the construction of a single, large evolving disposal trench. TSD also funds the construction of Projects W-025 and W-025A, fully-compliant RCRA trenches in the W-5 Burial Ground. Funding was provided by the ER Program and construction activities were completed in FY 1995. These trenches will be used to accept and store wastes from Hanford CERCLA remediation activities.

The ERDF has been downsized to accommodate budget reductions and lower waste volume projections. These revised assumptions were required to meet TPA milestone M-70-00, to be ready for operation by September 30, 1996.

B. ACTIVITIES TO BE ACCOMPLISHED IN FY 1997

Remedial Actions:

100 Area: Continue semi-annual sampling activities in the 100-KR-4 and 100-FR-3 ground water operable units.

Excavate and remove for disposal 26,800 loose cubic yards, and revise remedial design/remedial action plans for waste sites within 100-BC-1 and 100-BC-2 OUs; continue sampling activities of 24 wells in 100-BC-5 OU. Complete remedial action at the 116-H-1 liquid waste disposal trench; continue remedial design for 100-HR-2 OU; continue semi-annual sampling activities at 100-HR-3. Continue implementation of treatability study program. Conduct treatability studies and remedial design. Begin preparation of 120-D-1 Pond Closure Plan. Complete 100-NR-1 and 100-NR-2 OUs FFS reports and closure plans; conduct annual ground water monitoring activities.

200 Area: Operations of the 300 gpm capacity Pump and Treat system will begin at 200-ZP-1; additional extraction wells will be drilled at 200-ZP-2; will continue to remove carbon tetrachloride at ZP-2; complete construction of barrier at BP-1 and monitor the barrier. Perform stabilization of 200-UP)-1 pump and treat system; 120 gpm capacity Pump and Treat operations begin at 200-UP-1.

2211

1. Title and location of project:	Richland Environmental Restoration Project	2a. Project No. D-1.4.10
	Richland, Washington	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

300 Area: 300-FF-1 remediation will continue and contaminated soils will be excavated and consolidated. 300-FF-5 ground water sampling activities will continue; remedial design will begin. Continue activities at 300-FF-2.

RARA UST: Will continue basic S&M of inactive outdoor radiation areas; will continue ground and aerial application of herbicide to control vegetative growth on inactive waste sites; will continue decontamination/stabilization of contaminated sites by removing top soils and revegetating to control dust and soil erosion; will respond to radiation problem reports, as required.

Continue D&D management support including outyear planning for new project starts such as NEPA compliance, permitting, cultural resource review, and preliminary cost estimates/schedules; will initiate remediation of 100 Area Riverlines; continue S&M of 100 and 200 Area facilities; continue high priority risk assessment collective actions. Initiate demolition of the 190-C Building. Complete Phase I decommissioning, and decontamination of the 233-S project; initiate D&D activities at the 232-Z Facility; Perform 100 and 200 Area repairs as required to maintain safe conditions. At the N Reactor, complete deactivation of all remaining 100 N facilities including the 105N Reactor Building; will complete characterization of N Reactor fuel storage basin sludge and debris and complete N Basin water removal; continue operation of active systems to support 100 Area selected facilities. Asbestos Abatement: will continue asbestos abatement activities focusing on high risk facilities; complete 100% asbestos abatement at 105-C, 165-KE and 151-B facilities; continue regulatory compliance for asbestos management.

Continue overall program management services including project controls, management, reporting, and baseline planning; will continue development of various Major Systems Acquisition management systems and plan; will continue maintenance and operations of administrative records; prepare over 60 regulatory reports; continue TPA support; prepare and document results of public meetings, support project and sitewide planning and integration; make equipment purchases to support RI/FS activities; will continue quality assurance report; will continue quality assurance training; will continue to support activities such as cost estimating, grants and compliance oversight; continue to maintain the Hanford Remedial Action EIS; conduct systematic safety, health and environmental assessments (24 assessment and 20 compliance reviews); develop environmental compliance strategies (10 issues); interface with the Hanford Analytical Services Management to ensure effective utilization of on-site laboratories, to contract for off-site laboratories to perform Contract Laboratory Program (CLP) analyses and enhance CLP sample database tracking; continue to support HEIS, WIDS, and the Geographic Information System and general investigation studies. Will update the RI/FS baseline; support historical scoping studies, continue investigation of future suspect waste sites; continue to support purge water; will continue to support the Hanford Prototype Barrier, work on Price Anderson Amendment Act rules; complete development of Hanford Geological Model for Vadose Zone; and field demonstration of new technologies focusing on D&D, soil remediation, and ground water.

2212

1. Title and location of project:	Richland Environmental Restoration Project	2a. Project No. D-1.4.10
	Richland, Washington	2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Planning and outyear activities for laboratory support provides for the administration of Hanford analytical services, including management of commercial laboratory contracts. As a result of changing strategy under the refocusing ER Program, equipment costs have been moved from this subproject to the remedial action subproject, where these costs are directly supported.

S&M: Commence ground waste monitoring for the 300 and 1110 Areas consistent with the approved operating and management plans.

Disposal Facility: Continue facility construction, partially support operation and transportation requirements, complete project documentation and closeout, and continue regulatory reviews and interface.

Regulatory Drivers/Consequences:

TPA: All ERDF activities are affected by the TPA, an agreement and schedule between DOE, EPA, and Ecology for the remediation of the past practice waste sites at Hanford. If the ERDF remediation activities are not funded (resulting in remediation delays), the consequences will be continued public, worker, and environmental risks, and increases to the final cost of remediation due to inflation. Failure to meet the TPA schedule milestones could result in EPA assessing penalties of up to $5,000 for the first week and up to $10,000 for each additional week. In addition, Ecology may initiate judicial enforcement of the TPA.

CERCLA: As amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), CERCLA provides EPA enforcement authority for remediating contaminated subproject waste sites, and is part of the regulatory authority for the TPA. If ERDF remediation activities are not achieved per CERCLA, then enforcement actions are similar to enforcement provisions provided in the TPA. The DOE could be subject to additional enforcement actions outside of the TPA under CERCLA.

RCRA: As amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), RCRA provides Ecology enforcement authority for treatment, storage, and disposal units under RCRA Section 3004. If ERDF remediation activities are not achieved per RCRA, then enforcement actions under RCRA are similar to enforcement provisions provided in the TPA. In addition, under RCRA Section 3008, DOE could be subject to both civil and criminal enforcement sanctions for violations of the RCRA hazardous waste program.

NEPA: Application of NEPA to the ERDF is to ensure that potential impacts of assessment and remediation activities are evaluated. NEPA values were incorporated into the CERCLA Record of Decision for this subproject. This was a pilot program to integrate these two bodies of regulation into a single process.

2213

1. Title and location of project:	Richland Environmental Restoration Project Richland, Washington	2a. Project No. D-1.4.10 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

DOE Orders: Various DOE Orders (e.g., 4700.1, 5700.2D, etc.) provide and/or implement best management practices for policy and guidance to execute the ER Program. The project scope, cost, and schedule are a direct result of conforming to these various orders. Failure to fully comply with DOE Orders may result in increased risk to safety, human health, and the environment. Additional risks may result (e.g., project delays, uncontrolled costs, and delivery of incomplete or unacceptable products).

The scope of the ERDF subproject (ADS 3700) includes the following major efforts: 1) Project management and engineering support; 2) Design of the ERDF; 3) Construction of the initial complement of disposal cells; 4) Transportation of remediated material to the ERDF; 5) Controlled backfill operations of remediated material; 6) Construction of additional ERDF disposal cells; and 7) Construction of ERDF disposal cell covers.

9. Method of Performance

The Environmental Restoration Contractor, Bechtel Hanford, Inc. (BHI), is the major participant responsible for the overall management of the Hanford Site ER Project. BHI has three pre-selected subcontractors which will participate in the fulfillment of the project: CH2M Hill Hanford, Inc., IT Hanford, Inc., and Thermo Analytical, Inc. In addition, BHI will utilize fixed-price remediation contracts, awarded through a competitive bidding process, as needed. The baseline strategy for the Hanford ER Project is to complete the scope of work included in the approved WBS, and, in doing so, meet all TPA milestones.

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 669,006	$ 130,272	$ 113,839	$ 90,863	$ 327,583	$ 1,331,563
2. Decontamination & Dismantlement	118,360	44,916	41,304	37,036	141,847	383,463
3. Long-term S&M	0	0	910	200	800	1,090
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	15,107	1,893	2,200	2,700	8,700	30,600
b. Contingency	0	0	0	0	0	0
Total	$ 802,473	$ 177,081	$ 157,433	$ 130,799	$ 478,930	$1,746,716

NOTE: All costs in this schedule are identified for specific work scope to meet legal commitments, such as TPA.

2214

1. Title and location of project:	Richland Environmental Restoration Project	2a. Project No. D-1.4.10
	Richland, Washington	2b. Operating Expense Funded

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

2215

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and location of project: Rocky Flats Environmental Technology Site (RFETS) Environmental Restoration Project Golden, Colorado

2a. Project No. D-1.4.7

2b. Operating Expense Funded

3a. Date assessment phase initiated: 3rd Qtr. FY 1989

3b. Duration of assessment phase: 415 Months

4a. Date remediation phase starts: 4th Qtr. FY 1988

4b. Date remediation phase ends: Beyond current planning window

5. Previous cost estimate:
Total Estimated Cost (TEC): See TPC
Total Project Cost (TPC): $1,132,850*

6. Current cost estimate: (through FY 2001)
TEC: See TPC
TPC: $ 944,028*

7. Financial Schedule
Defense Funded Only

Fiscal Year	Appropriations *	Adjustments	Obligations *	Costs
Previous Years	$ 501,054	0	$ 501,054	$ 457,284
FY 1995	116,688	0	116,688	150,877
FY 1996	57,994	0	57,994	57,994
FY 1997	63,440	0	63,440	63,440
FY 1998	51,465	0	51,465	51,465
FY 1999	51,260	0	51,260	51,260
FY 2000	51,158	0	51,158	51,158
FY 2001	50,969	0	50,969	50,969

*Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

2216

1. Title and location of project:	Rocky Flats Environmental Technology Site (RFETS) Environmental Restoration Project Golden, Colorado	2a. Project No. D-1.4.7 2b. Operating Expense Funded

8. Project Description, Justification and Scope

The RFETS occupies approximately 400 acres in the midst of a 6,150 acre site. The industrial land use in the developed area of the plant site is surrounded by a buffer zone which is over a mile wide. Land use in the buffer zone would be classified as "vacant" except along the western side where gravel quarries exist. To date, 178 Individual Hazardous Substance Sites (IHSS) have been identified at RFETS. The quantity of contaminated soil and ground water will be determined during the operable unit (OU) remedial investigations. The 178 IHSSs have been grouped according to geographic location and contamination types and prioritization.

Remedial Actions:

The remedial activities encompass assessment and cleanup of 178 IHSSs. These sites are grouped into 10 OUs. Site characterization, assessment, and remediation activities on IHSSs are being carried out within the OU structure. Activities include:

- Work plan preparation, Resource Conservation and Recovery Act (RCRA) Facility Investigation/Remedial Investigation field work and sample collection, sample analysis, data validation, data analysis and modelling, feasibility studies, environmental evaluations, risk analyses, corrective action documentation and implementation, and accelerated removal actions to reduce on-site contamination. Specifically, No Further Action Documentation will be submitted for OUs 1, 3, 11, 15, and 16.
- Conduct Solar Ponds (OU4) sludge processing per agreement with the regulatory agencies; design and construct RCRA closure cap to contain on-site contamination; continue treatment of potentially contaminated water; excavate, treat, and transfer soil.
- Site-wide support activities include planning, monitoring, and reporting of ongoing activities in the RFETS Environmental Restoration Program, quality assurance activities, and community relations. The Treatment/Storage/Disposal facilities comprise decontamination facilities and waste handling facilities that are designed, constructed, and operated for use by multiple OUs, as well as, operation of an on-site analytic laboratory for short-term turnaround of soil and water samples for shared usage among multiple OUs. Additionally, technical direction and integration of environmental restoration risk assessment and technology development activities are carried out in support of interagency agreements.

Remedial activities are carried out under RCRA and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and under the provisions of the interagency agreement with the Environmental Protection Agency and the Colorado Department of Public Health and the Environment.

Decontamination and Dismantlement

When funding permits, D&D of surplus buildings, utilities, and equipment that have been transferred and accepted into the ER Program will be initiated

2217

1. Title and location of project:	Rocky Flats Environmental Technology Site (RFETS) Environmental Restoration Project Golden, Colorado	2a. Project No. D-1.4.7 2b. Operating Expense Funded

9. Method of Performance

The Deputy Assistant Secretary for Environmental Management has been assigned programmatic responsibility for the Department of Energy (DOE) Environmental Restoration Program. The Rocky Flats/Nevada Division (EM-452) in the Office of Southwestern Area Programs is the project management organization at DOE Headquarters for the Rocky Flats Environmental Restoration Project. The Environmental Restoration organization in the Rocky Flats Office has been delegated day-to-day project management responsibility and has established a dedicated Project Office at the site.

The Rocky Flats Field Office will provide technical, administrative, and financial management of the project. EG&G Rocky Flats, Inc. was the prime Management and Operating integrated contractor for all work at the site until June 30, 1995, and was responsible for overseeing all project and subproject activities at the site. As of July 1, 1995, the Kaiser-Hill Company assumed responsibility for operation of the site. Subcontractors are utilized for construction and remedial actions, surveillance and maintenance, and ensuring completion of the project in accordance with DOE guidance. ER activities are being integrated with other plant transition activities to ensure optimal and efficient use of resources.

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 499,329	$ 112,372	$ 37,810	$ 60,260	$ 187,175	$ 896,946
2. Decontamination & Dismantlement	1,725	4,316	3,105	0	0	9,146
3. Long-term S&M	0	0	0	400	6,557	6,957
4. Landlord	0	0	17,079	2,780	11,120	30,979
Total	$ 501,054	$ 116,688	$ 57,994	$ 63,440	$ 204,852	$ 944,028

2218

1. Title and location of project:	Rocky Flats Environmental Technology Site (RFETS) Environmental Restoration Project Golden, Colorado	2a. Project No. D-1.4.7 2b. Operating Expense Funded

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

2219

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Waste Operations)
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Liquid Waste Treatment Upgrades, Rocky Flats Environmental Technical Site, Golden, Colorado

2a. Project No.: 93-D-178
2b. Operating Expense Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 3rd Qtr. FY 1994

3b. A-E Work (Titles I & II) Duration: 34 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $32,700
Total Project Cost (TPC) -- $43,171

4a. Date Physical Construction Starts: 1st Qtr. FY 1997

4b. Date Construction Ends: 4th Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $32,700
TPC -- $43,171

7. Financial schedule (Federal Funds)

Fiscal Year	Appropriation b/ c/	Adjustments	Obligations	Costs
Prior Years	$ 3,700*		$ 3,700	$ 419
1995	3,300*		3,300	2,095
1996 a/	3,900*		3,900	2,900
1997	3,800		3,800	9,200
1998	8,500		8,500	8,500
1999	7,800		7,800	7,800
2000	1,700		1,700	1,786

* Appropriated as construction funding

a/ FY 1996 and outyear appropriations reflect Activity Data Sheet target level adjustments.
b/ Appropriations prior to FY 1997 were Construction Funded.
c/ Financial information prior to FY 1997 reflects funding managed by the Office of Waste Management (EM-30). This information is provided for comparison purposes.

2220

1. Title and location of project:	Liquid Waste Treatment Upgrades, Rocky Flats Environmental Technical Site, Golden, Colorado	2a. Project No.: 93-D-178 2b. Operating Expense Funded

8. Project Description, Justification and Scope

a) Building and Equipment

This project will upgrade liquid waste treatment capabilities at Rocky Flats. The project as currently scoped will consist of 13 subtasks as follows:

1. Waste Receiving

   Replacement of level, flow, and pH instrumentation and associated piping and components.

2. Precipitation

   Replacement of vessels, filters, agitators, and pumps, including associated piping and instrumentation.

3. Acid Neutralization

   Replacement of level and flow instrumentation.

4. Filtration

   Refurbishment of the feed tanks with level instrumentation, decanters and associated piping. Rebuild the two rotary drum vacuum filters, replace plugged lines and replace the vacuum pumps and support equipment.

5. Sludge Immobilization

   Removal of the old sludge dryer and obsolete direct cementation process glovebox. Installation of new belt conveyer and improved wet sludge immobilization equipment.

22221

8. Project Description, Justification and Scope (Continued)

6. Vent Scrubber

Replacement of control and monitoring instruments, blower control circuits, circulating pumps; reconfiguration of inlet ducts and addition of sound barriers for personnel protection.

7. Chemical Preparation

Replacement of the solids conveyor, tank agitators, pumps, level instruments and associated piping. Addition of a new phosphoric acid supply tank, a stainless steel liner for the chemical tank basin, and a sump system and lining to the caustic tank basin.

8. General Building Upgrades

Replacement of the existing PVC floor drains with stainless steel pipe, and replacement with a distributed control system which will include a data acquisition system to log process data.

9. New Product Waste Storage Tank

Installation of a third 100,000 gallon product water holding tank to allow analysis of product water prior to release. This will include upgrading of the basin around the existing product water tanks.

10. Rebuild Berm Around Chemical Tanks

Upgrade of the existing berm around the nitric acid, sodium hydroxide, and potassium hydroxide storage tanks and furnish pumps to transfer spills into Building 374.

11. Wastewater Storage Tanks

Installation of two new 950,000 gallon wastewater storage tanks near Building 374 to provide surge capacity for the evaporator feed water. The new tanks will be located within the protected area and within 500 feet of Building 374.

2222

8. Project Description, Justification and Scope (Continued)

12. Waste Transfer System

Installation of instrumentation to monitor and transmit waste tank level and flow data to the data acquisition system in Building 374 for all plant waste transfer stations.

13. Chemical Preparation Area Ventilation

Isolation of chemical preparation area exhaust ventilation from main Building 374 exhaust ventilation system. This will include a new acid scrubber.

b. Special Facilities (Part of subtask 8)

Data Acquisition System

Building 374 originally shared a data acquisition system (DAS) with Building 371 but the DAS has been taken out of service. A new and independent DAS system is required for Building 374 that will monitor not only the incoming waste streams (as the original DAS did), but also be capable of collecting essential operating data for the entire liquid waste treatment facility. This DAS system would receive its input from the field terminals in the rear of the main control room. These input would be wired in parallel with all the associated indicators, recorders, controllers and alarm annunciators already existing in the main control room panel which will be replaced with a new distributed control system (DCS). There will be no control signal output from the DAS, since existing, or new replacement distributed control system based indicating control station shall be used for Proportional, Integral, Deviative (PID) control.

The system has been estimated for a total of 159 analog, 126 digital and 36 thermocouple inputs. The A-E shall determine during the Title Design stage the exact number of inputs needed.

Data acquisition from remote termination units (RTU's) for the waste transfer stations are also included in the DAS.

c) HVAC and Utilities (Part of subtasks 9)

Separate ventilation of the chemical preparation rooms will consist of an acid scrubber. A packed bed acid scrubber will be required for acid tanks vents.

2223

8. Project Description, Justification and Scope (Continued)

Building 374 began operations in 1979 and no major replacement of systems has occurred since. The facility is operating with three temporary systems, installed on highly accelerated schedules to meet WIPP waste form requirements for TRU sludge and new DOE requirements for transporting salt. The existing data acquisition system does not allow recording of all operations data required for monitoring agencies.

If the upgrade of the Waste Treatment Facility is not supported, continued operation of the facility will be in jeopardy. This is due to:

1. Continuing deterioration of the process equipment through wear and obsolescence.
2. New legal requirements on waste management and containment.
3. Data acquisition and recording requirements for reviewing agencies.
4. New waste form requirements to meet future shipping and storage requirements.
5. Stricter management of recovered process water.

Successful operation of the Rocky Flats Environmental Technical Site (RFETS) will become increasingly dependent on having a compliant, latest technology waste treatment plant. This project will provide such a waste treatment plant.

A study of the condition of the Rocky Flats Process Waste Treatment Facility, Building 374, has revealed deterioration and obsolescence of the process equipment and facility. Stricter waste management and reporting requirements recently imposed by the DOE and EPA cannot be met with existing equipment. Building 374 processes all process aqueous waste generated at the RFETS. Environmental restoration and transition activities will result in an increased load on the Waste Treatment Facility. Significant upgrades of all processes are required to ensure that this facility can continue to operate within the RCRA reporting requirements.

Upgrade of the waste treatment facility will provide compliance with applicable regulations within RCRA monitoring and controlled processing. Upgrades will also provide the capability to process wastes forms to specifications of the Waste Isolation Pilot Plant (WIPP) and the Department of Transportation (DOT). Failure to proceed with Building 374 upgrades may inhibit the ability to maintain waste management operations within legal requirements imposed by the Resource Conservation and Recovery Act (RCRA) and jeopardize the capability of the facility to support environmental restoration and transition activities due to increasing loads on the waste treatment facility.

A recent study performed by the site contractor has identified potential opportunities to consolidate waste water management at RFETS. This integrated approach also identifies cost and schedule savings based upon the construction of a temporary (10 yr-life) facility to provide treatment capability for waste streams currently sent to B-374 and closure of B-374. DOE is currently evaluating this proposal. If found to be a better investment capable of meeting the sites needs, appropriate documentation will be approved to modify the project scope.

2224

1. Title and location of project:	Liquid Waste Treatment Upgrades, Rocky Flats Environmental Technical Site, Golden, Colorado	2a. Project No.: 93-D-178 2b. Operating Expense Funded

9. Method of Performance

Design will be on the basis of (a) negotiated architect-engineer contract. Construction and procurement will be accomplished by CPFF contract, utilizing fixed-price subcontracts to the extent feasible awarded on the basis of competitive bids, because all of the work will be in the PSZ.

2225

1. Title and location of project: Liquid Waste Treatment Upgrades, Rocky Flats Environmental Technical Site, Golden, Colorado

2a. Project No.: 93-D-178

2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 419	$ 2,095	$ 2,900	$ 9,200	$18,086	$ 32,700
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 419	$ 2,095	$ 2,900	$ 9,200	$18,086	$ 32,700
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	1,780	0	0	0	0	1,780
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	35	0	10	0	0	45
(e) Other project-related costs	2,307	0	640	475	5,224	8,646
Total other project costs	$ 4,122	$ 0	$ 650	$ 475	$ 5,224	$ 10,471
Total project costs	$ 4,541	$ 2,095	$ 3,550	$ 9,675	$23,310	$ 43,171
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 4,541	$ 2,095	$ 3,550	$ 9,675	$23,310	$ 43,171

b. Related annual funding (estimated life of project--3 to 10 years)	
(1) Facility operating costs	$ 0
(2) Facility maintenance and repair costs	10
(3) Programmatic operating expenses directly related to the facility	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	500
(5) GPP or other construction related to the programmatic effort in the facility	400
(6) Utility costs	20
(7) Other costs	0
Total related annual funding	$ 930

2226

1. Title and location of project:	Liquid Waste Treatment Upgrades, Rocky Flats Environmental Technical Site, Golden, Colorado	2a. Project No.: 93-D-178 2b. Operating Expense Funded

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988.

2227

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Waste Operations)
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Mixed Waste/Low-Level Waste Treatment Projects, Rocky Flats Environmental Technical Site, Golden, Colorado

2a. Project No.: 96-D-407
2b. Operating Expense Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 48 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $43,900
Total Project Cost (TPC) -- $57,100

4a. Date Physical Construction Starts: 3rd Qtr. FY 2000

4b. Date Construction Ends: 1st Qtr. FY 2005

6. Current Cost Estimate:
TEC -- $45,400
TPC -- $58,200

7. Financial schedule (Federal Funds):

Fiscal Year	Appropriation a/	Adjustments	Obligations	Costs
1996	$ 2,900*		$ 2,900	$ 200
1997	2,300		2,300	1,400
1998	2,800		2,800	1,800
1999	2,700		2,700	1,900
2000	4,500		4,500	4,400
2001	4,500		4,500	4,600
2002	4,400		4,400	5,600
2003	2,000		2,000	3,200
2004	1,700		1,700	2,400
2005	1,300		1,300	1,600
Outyears	16,300		16,300	18,300

* Appropriated as construction funding
a/ Financial information prior to FY 1997 reflects funding managed by the Office of Waste Management (EM-30). This information is provided for comparison purposes.

2228

8. Project Description, Justification and Scope

This project is being consolidated based on FY 1996 House and Senate language to provide program flexibility. These construction projects at Rocky Flats Environmental Technology Site (RFETS) are for mixed waste and low-level waste treatment systems. The subprojects listed below will be addressed individually in the data sheet and must undergo the same review process as any other construction line item proposed in the budget. Since changes occur on a real time basis and cannot be anticipated, this consolidated line item approach will provide DOE the flexibility to react to significant technical, programmatic, and regulatory changes that impact the programs. Three projects have been identified for inclusion in this line item.

The purpose of these projects is to provide treatment capacity and capability for low-level, mixed waste (LLMW) sludge and similar waste forms generated from liquid waste treatment operations in Buildings 374 and 774 for compliant storage, transportation, and disposal. Treatment of these wastes is required to meet Resource Conservation and Recovery Act (RCRA)-Land Disposal Restriction (LDR) regulations, Department of Transportation (DOT) shipping regulations, Federal Facility Compliance Act (FFCAct) requirements, and disposal site Waste Acceptance Criteria (WAC). There is presently no capability on-site to meet the regulatory requirements specified for these wastes.

These systems and the treatment technologies were developed through implementation of the mixed waste Federal Facility Compliance Agreement II Comprehensive Treatment and Management Plan (CTMP). During this implementation, the FFCAct of 1992 was enacted, which required each DOE site, which generated mixed waste, to develop treatment capacity to meet RCRA treatment standards for that mixed waste. Pursuant to the FFCAct, Rocky Flats entered into a compliance order with the State of Colorado to implement the Site Treatment Plan (STP) which replaced the CTMP and set new enforceable milestones. The proposed STP continues the program previously committed to in the CTMP with schedule adjustments based upon funding constraints.

The DOE is committed to compliance with environmental laws and regulations as well as safety and health requirements. The lack of support for LLMW capital projects proposed as LLMW treatment systems could result in non-compliance with outyear FFCAct milestones. The FFCAct milestones are enforced by the regulatory agencies under Section 3006 and 3021 of RCRA. All plant activities that generate mixed waste, outside of those activities necessary to maintain plant health and safety operating envelopes, would be suspended. The EM mission to deactivate production buildings and stabilize materials would be drastically curtailed. In addition, the EM-30 mission to minimize toxicity, reduce safety and health risks to the workers, public and the environment as well as minimizing the volume of the LLMW forms planned for this treatment system would be disrupted and delayed.

2229

8. Project Description, Justification and Scope (continued)

a. Subproject #01 - CTMP Immobilization of Miscellaneous Wastes
(former)

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEARS	CONSTRUCTION DATE - COMPLETION DATE
$ 11,900	$ 0	$ 0	$ 1,400	$ 1,500	$ 9,000	3rd Qtr. FY 2000 4th Qtr. FY 2003

This project will provide a system to treat and solidify LLMW. These various waste forms have been generated in both the production buildings and laboratories located at the RFETS. The treatment system will be constructed within an existing structure at RFETS and the project will include all retrofits to the existing facility necessary to support the immobilization treatment utility systems.

This project addresses Cementation and Polymer solidification technologies for immobilizing LLMW utilizing commercially available equipment to comply with the RCRA-LDR requirements and the Nevada Test Site (NTS) Waste Acceptance Criteria (WAC).

The preferred location for the Immobilization of Miscellaneous Wastes forms will be an area located within Building 776 (Room 158). Locating the process within this building will enable the immobilization process to be positioned within close proximity to other waste operations and utilize the existing liquid waste treatment system currently in operation in Building 374/774.

The current design concept requires an estimated 4,400 square feet of floor space. The facility to treat and immobilize miscellaneous wastes would consist of the following:

Bulk Storage: The bulk storage area will contain pallets containing bags of cement, additives, and low density polyethylene (LDPE) to be used for the immobilization processes. The area would be sized to accommodate 5 pallets of approximately 600 square feet of floor space.

Material Handling: The facility will require a material handling system to transfer waste drums and process feed materials. Equipment required would consist of: Drum Handling/Dumping Equipment, Live Roller Conveyor, Drum Filling Equipment, Size Reduction and Waste Sorting. This equipment will require approximately 400 square feet of floor space.

2230

8. Project Description, Justification and Scope (continued)

Pretreatment: The pretreatment area will consist of equipment to open waste containers containing liquids, precipitate silver neutralize acids and/or analytical lab solutions. The resulting liquids will be treated in Building 374. The silver precipitant will be treated by the immobilization treatment operation. The pretreatment operation will require approximately 160 square feet of floor space.

Immobilization: The immobilization area will contain equipment to mix cement, melt and extrude LDPE, feed waste, and fill drums for the immobilization of various waste forms within glovebox confinement. The immobilization equipment will require approximately 800 square feet of floor space. The polymer immobilization will contain extruders for both polymer microencapsulation and polymer macroencapsulation.

Miscellaneous Plutonium Recovery By-Products: The processing of miscellaneous plutonium by-products will not require the removal of existing equipment within Building 779. However, upgrades to the equipment will be required prior to operation and will be provided through operations funding.

b. Subproject #02 - CTMP Building 374/774 Sludge Immobilization
(former)

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEARS	CONSTRUCTION DATE - COMPLETION DATE	
$ 18,200	$ 0	$ 0	$ 1,500	$ 0	$ 16,700	To be determined	To be determined

This subproject was originally proposed as a FY 1996 New Start but has been deferred to the outyears due to funding constraints.

This project will provide a system to treat and solidify LLM wastes. These various waste forms have been generated in both the production buildings and laboratories located at the RFETS.

This project will also provide for adequate process system ventilation for the Building 774 Annex area. The waste is produced in Buildings 374/774 Liquid Waste Treatment Operations (LWTO), and does not consistently meet NTS or Waste Isolation Pilot Plant (WIPP) WAC. The technology used will be chosen between Microwave Solidification, Polymer Immobilization, or Cementation after the downselect analysis of the Technical Selection Decision Document.

2231

1. Title and Location of Project: Mixed Waste/Low-Level Waste Treatment Projects, Rocky Flats Envr. Tech. Site, Golden, Colorado	2a. Project No.: 96-D-407 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The treatment process is proposed to be located in the Building 774 Annex (Room 250). This has been selected due to its proximity to the Buildings 374/774 waste stream processing operations, the services available in the area, and that it is presently not occupied.

Building 774 Annex is presently vacant, so only limited construction removals are expected. The treatment facility will contain all drum opening and handling equipment, waste material and additive transfer equipment, temporary storage space in the form of silos for the additives, a staging area for untreated wastes due for treatment, space for sludge preparation, treatment processes, air monitoring and processing equipment, and a staging area for treated wastes to be stored until shipment from the building to RCRA storage or to a final disposal site. It is expected that 1,100 square feet of space will be necessary, not including primary storage space. The roof of Building 774 Annex will require new construction in the form of a second floor addition to house HVAC, air monitoring and processing equipment, required to support the treatment process.

The selected location is an open area with 13 foot high ceiling. The full Sludge Immobilization System will be contained within the first level of this facility with the exception of annex equipment and primary storage space. A standard oil-gas monitoring system for anticipated maximum levels of 500 ppm of oxides of nitrogen (NOx) and oxides of sulphur (SOx), trace amounts of Volatile Organic Compounds (VOCs), and radionuclides at an anticipated level of 10.6 grams/gram Pu will be necessary. Connection to the Building 774 HVAC system for the 774 Annex will be necessary.

The treatment system will utilize equipment to perform sorting, size reduction, solid material handling, emissions pollution control, immobilization and packaging of LLMW forms. The treated waste form will be compliant with the LDR standards of RCRA and the WAC for shipment to the NTS for final disposal. The immobilization components for LLMW Bypass Sludge will utilize one of the following three candidate technologies; Polymer Solidification, Microwave Solidification or Cementation. These technologies have been reliably demonstrated to produce leach resistant final waste forms that meet LDR standards. An additional benefit of the polymer solidification and microwave solidification technologies is the waste minimization provided through volume reduction.

The immobilization process minimizes the toxicity and exposure to the hazardous constituents found in these LLMW. The treatment system thereby reduces the safety and health risks associated with the storage and disposal of these wastes forms to workers, the public, and the environment by implementing an effective and efficient system to treat and minimize LLMW.

2232

8. Project Description, Justification and Scope (continued)

c. Subproject #03 - CTMP Surface Organic Contaminant Removal

(former) TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEARS	CONSTRUCTION DATE - COMPLETION DATE
$ 15,300	$ 0	$ 0	$ 0	$ 800	$ 14,500	2nd Qtr. FY 2002 — 1st Qtr. FY 2005

The CTMP System 5-Surface Organic Contaminant Removal Treatment System (SOCR) project will treat LLMW to remove Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs). This treatment system will treat 12% of the LLMW backlog and newly generated wastes at RFETS. Newly generated waste amounts are based on a ten-year life of the project starting in 2003.

The treatment technologies presented here are Low Temperature Thermal Desorption (LTTD) for VOC and SVOC contaminated wastes and Super Critical CO_2 Extraction ($SCCO_2$) for SVOC contaminated wastes. These technologies will treat waste classified as mixed hazardous debris to treatment standards defined in 40 CFR 268.45 Table 1, to meet land disposal restrictions (LDR). LTTD is a thermal extraction technology and $SCCO_2$ in a chemical extraction technology.

The Thermal Desorption technology utilizes heat vacuum to pull VOCs from mixed wastes. The technology is currently used commercially for soil and sludge contamination cleanup. A demonstration of the LTTD with both granular activated carbon (GAC) capture and non-thermal plasma (NTP) destruction of described VOCs will be conducted on actual mixed combustible waste in 1995. The demonstration will be conducted in the tent 10 permacon.

The $SCCO_2$ technology utilizes carbon dioxide which, when in a super critical state, is an excellent solvent to remove SVOCs and VOCs from the waste. This technology has been used in industry for various applications ranging from extracting caffeine from coffee beans to cleaning circuit boards. A demonstration unit is operating at the University of Colorado measuring extraction coefficient for SVOC and VOC from surrogate Rocky Flats waste, and a demonstration unit is operating at Los Alamos National Laboratory for radiological contaminated waste.

The SOCR project is located in Building 776, Room 158 at RFETS. The room is located in a metal building addition located in the northwest corner of Building 776. The building addition was added to Building 776 in 1966. This project will renovate 2,400 square feet of the addition in an area presently configured as a maintenance pipe shop (the building user is not utilizing the pipe shop).

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8. Project Description, Justification and Scope (continued)

Another CTMP project (Immobilization of Miscellaneous Wastes) is also located in room 158. The two projects benefit from this proximity. Some of the proposed facility can be shared saving capital dollars and operational costs.

Examples of operation cost savings include:
- Wastes that require immobilization after SOCR treatment can easily be transported to the Immobilization equipment.
- Shared drum opening and sorting facilities allow wastes that cannot be treated by one system to be processed by the other without having to be redrummed and 'bagged out'.
- More efficient use of personnel such as Radiation Control Technicians.

Examples of capital costs savings include:
- Shared glovebox for sorting.
- Shared contamination control cell.
- Shared Heating/Ventilation and Air Conditioning (HVAC).

The majority of required utilities for the SOCR project presently exist within Room 158. Utilities include electrical power, Life Safety/Disaster Warning (LS/DW), telephone service, and Heating/Ventilation and Air Conditioning (HVAC).

This project includes the planning, design, construction and preparation of a treatment system to treat the RFETS LLMW forms whose surfaces have been contaminated with VOCs, are inherently hazardous, and do not meet the LDR requirements. The treatment system will utilize equipment to perform sorting, size reduction, solid material handling, separation of organics from the surfaces of the bulk material, stabilization and packaging of the treated waste form. The recovered organics will be treated by other CTMP systems. The remaining solid materials will be immobilized by macroencapsulation with polymer or cement.

This treatment system will be used to treat 19 LLMW forms, including six waste forms that must presently be treated under RCRA prior to disposal. The LLMW forms are contaminated with VOCs consisting primarily of chlorinated solvents. The wastes identified for treatment by this system consist of accumulated inventory as well as waste forms that will continue to be generated and accumulated during decontamination and decommissioning activities at the RFETS.

Approximately 2,400 square feet of space will be needed to house the overall process equipment, process consumables and to provide storage space for both treated and untreated LLMW forms.

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9. Method of Performance

The method of performance will vary with the project and plant location. At RFETS and for these projects, predecisional design work will be performed by the Site Contractor. Title design will be performed by an Architect-Engineering (A-e) firm under a Fixed-Price contract, and construction will be completed by a Cost-Plus-Fixed-Fee Contractor. The feasibility of pursuing a design-build contract to potentially reduce costs is being analyzed.

10. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 0	$ 0	$ 200	$ 1,400	$43,800	$ 45,400
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 0	$ 0	$ 200	$ 1,400	$43,800	$ 45,400
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	1,240	150	0	0	0	1,390
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	106	136	0	55	173	470
(e) Other project-related costs	1,620	817	1,000	245	7,258	10,940
Total other project costs	$ 2,966	$ 1,103	$ 1,000	$ 300	$ 7,431	$ 12,800
Total project costs	$ 2,966	$ 1,103	$ 1,200	$ 1,700	$51,231	$ 58,200
(f) Non-federal contribution	0	0	0	0	0	0
Net Federal total project cost (TPC)	$ 2,966	$ 1,103	$ 1,200	$ 1,700	$51,231	$ 58,200

2235

1. Title and Location of Project: Mixed Waste/Low-Level Waste Treatment Projects, Rocky Flats Envr. Tech. Site, Golden, Colorado	2a. Project No.: 96-D-407 2b. Operating Expense Funded

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

OFFICE OF ENVIRONMENTAL RESTORATION
(Site Stabilization)
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Infrastructure Replacement, Rocky Flats Plant, Golden, Colorado

2a. Project No.: 94-D-451 ADS# RF-6751
2b. Operating Expense Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Quarter FY 1988

3b. A-E Work (Titles I & II) Duration: Ongoing

4a. Date Physical Construction Starts: 4th Quarter FY 1988

4b. Date Construction Ends: 4th Quarter FY 2002

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $56,353
Total Project Cost (TPC) -- $58,714

6. Current Cost Estimate:
TEC -- $56,353
TPC -- $58,714

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
Prior Years *	$ 35,523	$(11,620)	$ 23,903	$ 15,251
1993 *	11,080	(11,080) a/	0	5,366
1994 *	6,600	0	6,600	3,863
1995 *	10,600	(500) b/	10,100	5,786
1996 *	2,940	0	2,940	3,700
1997	2,450	0	2,450	3,229
1998	0	0	0	8,798
1999	0	0	0	0
2000	0	0	0	0
2001	10,360 c/	0	10,360 c/	5,000
2002	0	0	0	5,360

* Appropriated as construction funding.

Note: This project was established in FY 1994 from transferring subprojects from Defense Programs project 88-D-122, Facilities Capabilities Assurance Program, Various Locations.

a/ Adjustment reflects Defense Programs FY 1993 general reduction.
b/ Reflects congressionally mandated rescission.
c/ The present consolidation effort at Rocky Flats may require additional funding for Defense Nuclear Facility Safety Board requirements in the 371 Area. This scope of work is under review.

1. Title and Location of Project: Infrastructure Replacement, Rocky Flats Plant, Golden, Colorado

2a. Project No.: 94-D-451 ADS# RF-6751

2b. Operating Expense Funded

8. Project Description, Justification and Scope

The total estimated cost is $56,353,000 and the total project cost is $58,714,000.

The objective of the Infrastructure Replacement project is to replace electrical, mechanical, or other infrastructure systems and to manage the continuing deterioration of the Rocky Flats aging facilities. The primary utilities systems were designed and built in the 1950's. The project will address utility capacity and capability and ensure vital safety systems remain operable throughout transition and decontamination and decommissioning (D&D) activities and to ensure worker safety and health. The subprojects within this project originated as part of Defense Programs' Facilities Capabilities Assurance Program (FCAP) project (88-D-122), whose objective was to maintain production capability by replacing obsolete and inadequate facilities. As an Environmental Management site transitioning to D&D and/or reuse, the planned waste treatment and D&D activities still require that vital safety and utility systems remain operational in order to ensure worker safety and health and protection of the public.

The following is a brief description and justification for each of the subprojects. For clarity, all four subprojects are presented, not just those proposed for FY 1997 funding. Each of these subprojects is being reviewed for possible descoping in light of the new mission at Rocky Flats; however, the need for the subprojects remains viable. The reduced TEC of the projects reflects descope of the subprojects due to mission descoping.

Subproject 88-01 - Electrical Distribution System Replacement and Upgrade, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	Construction Start - Completion Dates
$ 27,353	$ 15,103	$ 3,100	$ 3,760	$ 2,940	$ 2,450	$ 0	2nd Qtr. FY 1989 - 4th Qtr. FY 1998

The total estimated cost of this subproject, has decreased from $35,160 to 27,353.

2238

8. Project Description, Justification and Scope (continued)

This project is necessary to provide the required reliability of electric services to all facilities at the Rocky Flats Plant. The major portion of the existing system and equipment was installed in the early 1950's and is reaching or has reached its design life, which presents major maintenance problems due to the lack of parts availability. The expansion of plant facilities has caused the capacity of sections of the electric system to be exceeded. In addition to the influence of load growth on component capability, ratings of the components in many cases is indeterminate due to modifications or repairs made to the equipment under numerous emergency "make-do" repair situations. These factors limit the ability of the system to serve present loads and could result in serious reliability and safety concerns. Changing environmental and plant operating conditions have made it necessary to update and modify the electrical system load forecasts. These recent forecasts have been revised to agree with actual measured loads that show reduced load growth and a peak estimated demand load through 1994 of about 36 MVA or 29 Mw.

This project is necessary to correct known Rocky Flats Plant (RFP) electrical system deficiencies and assist in sustaining the present and future capabilities of the Plant wide Electrical Distribution System. It will provide reliable electric service, improve operational flexibility for existing loads, allow for future expansions at the Rocky Flats Plant required by future decontamination and decommissioning and waste operations, and includes: (1) construction of a new 115/13.8-kV substation (2040 square feet); (2) installation of an upgraded 13.8-KV overhead distribution system which will include upgrading the existing 22-4 MVA substations inside the Protected Area, and removal of part of or all three existing substations. Based on current Budget Authority (BA) Targets, this project will not be supported in outyears (FY 1998 and out), and therefore Budget, Scope, and Schedule to support this project has been deleted; and, (3) replacement of the B881 transformers.

The DOE General Design Criteria Manual 6430.1A states "Where a high degree of service reliability is required for operating or safety reasons, two separate supply services shall be provided, physically separated and served from separate supply sources, to minimize the possibility of simultaneous service outages from natural or other causes." The existing system at the RFP complies with this requirement by having two transformers in the main substations, each capable of carrying the total substation load. When the total substation load exceeds the capacity of one transformer and an emergency situation such as loss of transformer occurs, the combined load cannot be carried for an extended period, resulting in outages to facilities.

This situation existed at two substations for a brief period during 1985-1986 but has been temporarily remediated by load transference from the overloaded substations to another substation, which had adequate capacity. Replacing three of the four existing 115/13.8-kV substations with the 21/28/35/39.2MVA substation will eliminate overloading problems by increasing plant transformer capacity for future load growth and will provide increased operational flexibility. In addition to the substation capacity problem, there are serious operational concerns with the system's configuration and the deteriorated condition of existing equipment. Some substations equipment is so outdated that spare parts are no longer manufactured, which causes severe maintenance problems. Additionally, the system's configuration can result in the overloading of alternate feeders during emergency switching.

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8. Project Description, Justification and Scope (continued)

Construction of the new 21/28/35MVA substation began in FY 1996 and will be completed in FY 1998. It will meet the capacity requirements for load forecasts through at least the year 2015. The load forecasts are expected to accommodate a changing plant mission.

In addition to the existing overhead distribution system capacity problems, there are several other inherent problems with its design and condition. The overhead wires are of two different metals, aluminum and copper. Many of the connectors used throughout the system are not suitable for aluminum-to-copper connections. The connections create "hot spot" conditions that have been detected through infrared testing. These hot spots can lead to fault conditions that disrupt electric service to critical facilities.

Construction of a new underground distribution system was canceled early in 1990 because of environmental barriers when performing necessary excavation. Development of upgraded overhead 13.8KV system has been undertaken to alleviate problems with the present overhead system.

Construction of the B881 transformer/generator replacement project began in February 93. The contract was awarded 11/13/92. Three existing transformers in B881 came from World War II Liberty Ships and could fail at any time. They are loaded to capacity. In addition, the Plant computer facility and the Plant analytical labs are housed in B881, and are dependent on these aging transformers. The B881 is a contaminated building that requires maintenance of its mechanical systems.

2240

Subproject 90-02 - Building Electrical Rehabilitation, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1994	FY 1995	Construction Start - Completion Dates
$ 5,500	$ 4,700	$ 0	$ 800	2nd Qtr. FY 1993 - 4th Qtr. FY 1995

This project will upgrade the electrical systems in buildings throughout the Department of Energy's Rocky Flats Plant. This upgrade is necessary to meet current and projected plant mission requirements.

8. Project Description, Justification and Scope (continued)

Subproject 91-03 - Central Steam Plant Renovation, Rocky Flats Plant, Golden, Colorado

TEC	Previous	Construction Start - Completion Dates
$ 3,300	$ 3,300	3rd Qtr. FY 1994 - 3rd Qtr. FY 1995

The completion date for this subproject has changed from 4th Qtr. FY 1994 to 3rd Qtr. FY 1995.

This subproject provided system reliability and energy conservation by upgrading and renovating the central steam plant at the Department of Energy's Rocky Flats Plant.

This subproject has been completed.

Subproject 93-04 - Plutonium Facilities Heating, Ventilation, and Air Conditioning Restoration, Rocky Flats Plant, Golden, Colorado

TEC	Previous	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Construction Start - Completion Dates
$ 20,200	$ 4,300	$ 5,540	$ 0	$ 0	$ 0	$ 0	$ 0	$10,360	1st Qtr. FY 1996 - 4th Qtr. FY 2002

The completion date has changed from 4th Qtr. FY 1997 to 4th Qtr. FY 2002 due to budget restrictions.

The project will restore the aging Heating, Ventilating, and Air Conditioning (HVAC) systems in the Plutonium (Pu) facilities at the Rocky Flats Plant. This work will include renovation or upgrade of supply, return, and exhaust air systems, cooling equipment, air compressors, cooling towers, air dryers, air compressors, and instrumentation and controls.

This project will revitalize HVAC and utility systems which are critical to continued contamination control within the Rocky Flats Plant. Portions of this project will ensure that radioactive contamination spread within the buildings is contained should the primary containment systems fails. The remaining work will ensure that temperatures, humidities, and cleanliness are maintained within required tolerances in plutonium buildings. The major portions of work under this project will be in Buildings 371, 559, 702, 707, 712, 750, 771, 776/777, and 779.

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1. Title and Location of Project: Infrastructure Replacement, Rocky Flats Plant, Golden, Colorado | 2a. Project No.: 94-D-451 | ADS# RF-6751
2b. Operating Expense Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 18,100
1. Engineering design and inspection at approximately 41 percent of construction costs (item c)	$ 12,913	
2. Construction management costs at approximately 9 percent of construction costs (item c)	2,885	
3. Project management at 7 percent of construction costs (item c)	2,302	
b. Land and land rights		0
c. Construction costs		31,203
1. Improvements to land	0	
2. Buildings	19,010	
3. Other structures	9,790	
4. Utilities	80	
5. Special facilities	2,323	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		970
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 50,273
h. Contingency at approximately 12 percent of above costs		6,080
i. Total line item cost (Section 12.a.1.(a))		$ 56,353
j. Non-Federal contribution		0
Net Federal total estimated cost (TEC)		$ 56,353

2242

10. Method of Performance

Titles I and II engineering and design, and Title III inspection will be performed by an Architect-Engineering firm working under contact with the Operation Contractor, or by the Operation Contractor.

Construction will be performed by contractors working under fixed-price, competitively bid contracts with the operating contractor.

Note: High Engineering, Design and Inspection (ED&I) percentage is driven by sunk costs for designing the originally planned underground distribution system and sunk costs for the design of Electrical Rehabilitation, which has been canceled.

All costs were escalated using the "Anticipated Economic Escalation Rates for DOE Construction Projects" developed by the Independent Cost Estimating (ICE) staff and updated in August 1993. All costs were escalated to the midpoint of the activity.

1. Title and Location of Project: Infrastructure Replacement, Rocky Flats Plant, Golden, Colorado

2a. Project No.: 94-D-451 ADS# RF-6751

2b. Operating Expense Funded

11. Schedule of Projects Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	Total
a. Total project costs										
1. Total facility costs										
(a) Line item (Section 10.i)	$24,480	$ 5,786	$ 3,700	$ 3,229	$ 8,798	$ 0	$ 0	$ 5,000	$ 5,360	$56,353
(b) Operating expense funded equipment	0	0	0	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0	0	0	0
Total facility cost (Federal & Non-Federal)	$24,480	$ 5,786	$ 3,700	$ 3,229	$ 8,798	$ 0	$ 0	$ 5,000	$ 5,360	$56,353
2. Other project costs										
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	783	0	0	0	0	0	0	0	0	783
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0	0	0	0	0
(d) NEPA documentation costs ...	0	0	0	0	0	0	0	0	0	0
(e) Other project-related costs	388	120	100	423	300	147	100	0	0	1,578
Total other project costs	$ 1,171	$ 120	$ 100	$ 423	$ 300	$ 147	$ 100	$ 0	$ 0	$ 2,361
Total project costs	$25,651	$ 5,906	$ 3,800	$ 3,652	$ 9,098	$ 147	$ 100	$ 5,000	$ 5,360	$58,714
(f) Non-Federal contribution	0	0	0	0	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$25,651	$ 5,906	$ 3,800	$ 3,652	$ 9,098	$ 147	$ 100	$ 5,000	$ 5,360	$58,714

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11. Schedule of Projects Funding and Other Related Funding Requirements (continued)

b. Related annual funding	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	$ 0
Total related annual funding	

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item--This represents normal engineering design, procurement, construction, and inspection of utility and construction projects of this size, range, and complexity.
(b) Expense-funded equipment--None.
(c) Inventories--None.
2. Other project costs
(a) R&D necessary to complete construction--None.
(b) Conceptual design--$783,000. Predecisional costs include preparation and revision of the Conceptual Design Report in prior years.
(c) Decontamination and decommissioning (D&D)--None.
(d) NEPA documentation costs--None.
(e) Other project-related costs--$1,578,000. Other project funding includes design criteria development, SARs, validation presentations, A/E selection, start-up testing, spare parts and O&M manuals.
(f) Non-Federal contribution--None.

b. Related annual funding
None.

13. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. {If applicable} The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988. {If applicable} DOE has reviewed the GSA inventory of Federal Scientific laboratories and found insufficient space available, as reported by the GSA inventory.

14. Supplemental Project Data for Facility Utilization

This project does not include the construction of new buildings or building additions.

2246

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Site Stabilization)
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Master Safeguards and Security Agreement/ Material Surveillance Task Force Security Upgrades, Rocky Flats Plant, Golden, Colorado

2a. Project No.: 92-D-125 ADS# RF-6757
2b. Operating Expense Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Quarter FY 1994 a/

3b. A-E Work (Titles I & II) Duration: 48 months a/

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $36,800
Total Project Cost (TPC) -- $40,320

4a. Date Physical Construction Starts: 4th Quarter FY 1994 a/

4b. Date Construction Ends: 4th Quarter FY 2000 a/

6. Current Cost Estimate:
TEC -- $41,300d/
TPC -- $45,320

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1992 *	$ 3,500	$ (3,500) b/	$ 0	$ 0
1993 *	0	0	0	0
1994 *	3,900	0	3,900	763
1995 *	2,100	0	2,100	4,337
1996 *	7,000 c/	0	7,000	5,500
1997	11,500	0	11,500	13,600
1998	8,000	0	8,000	4,000
1999	8,800	0	8,800	8,200
2000	0	0	0	4,800
2001	0	0	0	100

* Appropriated as construction funding.

a/ Revised to be consistent with submitted DOE HQ Baseline Change Proposal (BCP) 94-106-RF-M.
b/ Adjustments reflect the funding that remained in Defense Programs (DP) after the DP and Environmental Management Memorandum of Agreement dated August 27, 1993. DP transferred responsibility for the project to Environmental Management in FY 1992.
c/ FY 1996 funding level reflects a revision funding to the scope to support the Rocky Flats Special Nuclear Materials (SNM) consolidation initiative.
d/ The increased costs for the MSSA Nuclear Material accountability results from revised estimates from the DOE Oakland Operations Office for the DOE complex standardized (SNM) stabilization and packaging system.

2247

1. Title and Location of Project:	Master Safeguards and Security Agreement/ Material Surveillance Task Force Security Upgrades, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-125 2b. Operating Expense Funded	ADS# RF-6757

8. Project Description, Justification and Scope

The revised Master Safeguards and Security Agreement (MSSA) line-item contains 38 sub-projects which will increase the security and safety of Special Nuclear Materials (SNM), vital equipment, classified matter, and government property at the Rocky Flats Plant (Golden, Colorado) in accordance with the 1987 MSSA. The subproject work scope of the MSSA Construction Line-Item (CLI) has been significantly updated to include new subprojects of higher Safeguards & Security (S&S) programmatic priority whose scope-of-work is consistent with the intent of the MSSA document published in 1987. Of the 41 subprojects on the combined priority list, current MSSA funding profiles are estimated to fund only the top 28 priority subprojects. Unfunded MSSA subprojects primarily represent projects that either required further site mission definition or rely on technology that is not currently available on a "production" basis. The remainder of the subprojects on the combined list are currently under consideration for alternate funding.

These projects respond to DOE Order 5630.13 which requires each facility with SNM in their charge to review their Safeguards and Security Systems for potential vulnerabilities. This review was performed in two parts by the Master Safeguards and Security Agreement and an earlier review of the 707 Manufacturing Building by a Materials Surveillance Task Force (MSTF). The findings and recommendations of both efforts are documented in the MSSA report, dated September 1987.

The Safeguards and Security System used at Rocky Flats Plant can be discussed in terms of successive layers of protection for each of the buildings which contain SNM. Each protective layer is fitted with various types of electronic equipment, alarm detectors, alarm assessment and surveillance systems, physical barriers, and administrative controls to ensure that no unauthorized to SNM or classified information is possible. Security systems cannot typically be viewed merely as an accumulation of distinct and separate components. Rather, there is a synergistic quality to the measure of a security system's effectiveness, where the whole system is somewhat more than its parts. Evaluations or judgements of a particular component's worth on its own are not indicative of its true value to the system, and are therefore deceiving. Systems must be measured as a whole or in large segments to ensure that accurate conclusions are reached. Factors such as physical location, interaction with other components, communications, inherent strengths and weaknesses make the true value of a security system a complementary program. Decisions to change the scope of any portion of this project should be considered carefully before being implemented in order to determine the impact upon the entire system. Efficiency must be consider as well. The consolidation and repackaging of SNM will reduce requirements for detection, assessment, delay, interruption, and neutralization allowing great resource savings.

2248

1. Title and Location of Project:	Master Safeguards and Security Agreement/ Material Surveillance Task Force Security Upgrades, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-125 2b. Operating Expense Funded	ADS# RF-6757

8. Project Description, Justification and Scope (continued)

All safeguards and security systems consist of five basic components: detection, assessment, delay, interruption, and neutralization. Detection is simply the ability to discover intrusion or other unauthorized acts. Assessment is the ability to accurately recognize a detection event and determine the cause for it. Delay refers to physical impediments such as fences and walls to increase the adversary task time. Interruption is the act of disturbing the adversary action, forcing a response. Neutralization is the defeat of the adversary. Detection and assessment usually rely heavily on automated systems, such as intrusion detection and Closed-Circuit Television surveillance systems, whereas interruption and neutralization are almost exclusively the domain of the Protective Force. Delay systems are generally passive installations of barriers. All five elements are vital; loss or degradation of one seriously jeopardizes the ability to ensure protection of assets. The tasks within this project will enhance all of these functions, resulting in a balanced and effective system.

These basic components are represented in this Construction Line-Item by five functional groups of MSSA Line Item subprojects. These functional groups are defined below. All five components (functional groups) are vital; loss or degradation of one component may seriously jeopardize the ability of the overall system to ensure protection of assets. Each subproject of the MSSA CLI will enhance one or more of these components, resulting in a balanced and effective system.

Group	Task Title	Brief Description
(1)	Alarms and Alarms Support System	The tasks in this group relate to all facets of the alarm system, from initiation of an alarm, through its transmission and processing, to annunciation, along with the equipment and facilities necessary to support those functions.
(2)	Protective Force Support	The Tasks within this category pertain to the enhancement of the Protective Force. Ensuring that the response to security emergencies is both timely and effective requires that the Protective Force be physically conditioned, well trained, and properly equipped. These requirements, in turn, impose further needs for storage space and ancillary equipment.

2249

8. Project Description, Justification and Scope (continued)

(3)	Nuclear Material Accountability Systems	Accountability systems are used to determine the SNM content of packages in a wide variety of applications, ranging from holdup in glovebox exhaust plenums to off-site shipments and receipts. The highly specialized and technology intensive nature of SNM assay, along with the stringent accountability requirements imposed by DOE Order 5633.3, necessitates the utilization of a large number of job-specific accountability systems, in addition to a broad range of support equipment. The tasks in this grouping reflect this need.
(4)	Physical Protection	Physical protection generally refers to increasing the amount of time it takes to make unauthorized physical access to an asset repository. By doing this, the protective force is given more time to respond and Technical Surveillance Countermeasures in an effective manner, thereby decreasing the opportunity for an adversary(s) to accomplish their objective. Physical protection tasks are typically passive installations of barriers or obstacles designed to be penetration- or bypass-resistant. In addition to the physical protection tasks in this grouping, there is also a task to support TSCM operations.
(5)	Access Control	Access control involves the screening of personnel and packages entering security areas to ensure that the personnel are authorized to enter the area and that no contraband is introduced. The DOE Orders mandate certain personnel identification verification and package inspection criteria for the screening process at each security level, and the tasks within this grouping support these requirements.

Weapons grade SNM is the only missing ingredient to unclassified public production of a nuclear weapon. In addition to the substantial collections of Category I quantities of SNM in storage at Rocky Flats, there are also completed weapons components. It is unquestionable that these assets must be afforded a high level of protection from theft and other acts detrimental to national security interests. The consequences of a successful acquisition of nuclear assets by a terrorist organization or other group are considered unacceptable.

The FY 1997 appropriation will continue construction of the nuclear material accountability system, procurement of hold-up measurement equipment, and continuation of Building 371 upgrades for consolidation.

2250

1. Title and Location of Project:	Master Safeguards and Security Agreement/ Material Surveillance Task Force Security Upgrades, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-125 2b. Operating Expense Funded	ADS# RF-6757

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 7,470
1. Engineering design and inspection at approximately 20 percent of construction costs (item c).	$ 4,910	
2. Construction management costs at approximately 7 percent of construction costs (item c)	1,550	
3. Project management at 4 percent of construction costs (item c)	1,010	
b. Land and land rights		0
c. Construction costs		24,680
1. Improvements to land	0	
2. Buildings	0	
3. Other structures	0	
4. Utilities	0	
5. Special facilities	0	
a. Equipment	16,190	
6. Installation	8,490	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		2,000
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 34,150
h. Contingency at approximately 20 percent of above costs.		7,150
i. Total line item cost (Section 12.a.1.(a))		$ 41,300
j. Non-Federal contribution.		0
Net Federal total estimated cost (TEC)		$ 41,300

Note: Revised to be consistent with Rocky Flats Office (RFO) BCP 94-106-RF-M, and approved FY 1994 Rocky Flats Plant (RFP) Work Package (WP) 74301.

1. Title and Location of Project:	Master Safeguards and Security Agreement/ Material Surveillance Task Force Security Upgrades, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-125 2b. Operating Expense Funded	ADS# RF-6757

10. Method of Performance

Due to the subproject nature of this Line Item and the mission transition at Rocky Flats Plant, this Line Item has been structured to facilitate subproject scope adjustments that make economic sense against evolving transition needs which affect Safeguards and Security issues. The Key Decision (KD) process will be used on each discrete subproject to validate subproject scope, schedule, and cost prior to the commitment of capital funds to the subproject.

A Project Team will be established to fully plan the MSSA CLI, establish major task Statement-of-Work, and perform engineering work, (Titles I through III Engineering) through a combination of in-house design expertise and by using the services of Architect/Engineering (A/E) firms. When determined to be cost and schedule effective, subproject designs, for Titles I through III Engineering, will be accomplished by using Fixed Price Contracting for discrete subproject statements-of-work where ever possible. It is anticipated that requirements for Architect Engineering services will be supplied by the placement of Task Orders against Master Task Subcontracts (MTS) or, the placement of individual subcontracts as deemed appropriate by procurement with concurrence of the Project Manager.

22552

1. Title and Location of Project:	Master Safeguards and Security Agreement/ Material Surveillance Task Force Security Upgrades, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-125 2b. Operating Expense Funded	ADS# RF-6757

11. Funding Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
a. Total project costs									
1. Total facility costs									
(a) Line item (Section 10.i.)	$ 763	$ 4,337	$ 5,500	$13,600	$ 4,000	$ 8,200	$ 4,800	$ 100	$ 41,300
(b) Operating expense funded equipment	0	0	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	$ 763	$ 4,337	$ 5,500	$13,600	$ 4,000	$ 8,200	$ 4,800	$ 100	$ 41,300
2. Other project costs									
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	0
(b) Conceptual design costs	760	0	0	0	0	0	0	0	760
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0	0	0	0
(e) Other project-related costs	1,595	100	223	260	426	260	200	196	3,260
Total other project costs	$ 2,355	$ 100	$ 223	$ 260	$ 426	$ 260	$ 200	$ 196	$ 4,020
Total project cost	$ 3,118	$ 4,437	$ 5,723	$13,360	$ 4,426	$ 8,460	$ 5,000	$ 296	$ 45,320
(f) Non-Federal contribution	0	0	0	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 3,118	$ 4,437	$ 5,723	$13,860	$ 4,426	$ 8,460	$ 5,000	$ 296	$ 45,320

b. Related annual funding (estimated life of project--20 to 30 years)	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total other related annual funding	$ 0

2253

1. Title and Location of Project:	Master Safeguards and Security Agreement/ Material Surveillance Task Force Security Upgrades, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-125 2b. Operating Expense Funded	ADS# RF-6757

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item--Construction line item will provide to upgrade protection measures.
      (b) Expense-funded equipment--No operating expense funded equipment will be purchased for this project.
      (c) Inventories--No current inventories will be used for this project.
   2. Other project costs
      (a) R&D necessary to complete construction--No R&D will be required for this project.
      (b) Conceptual design--Conceptual design report has been prepared. The need for revisions to this document are being discussed with DOE RFO to include expanded scope for SNM Consolidation. An enhanced Design Criteria will also be prepared for SNM Consolidation.
      (c) Decontamination and decommissioning (D&D)--None.
      (d) NEPA documentation costs--None.
      (e) Other project related costs--Other project related costs include Safety Analysis Reports, Construction project data sheets preparation and project validation, development of design criteria, operational readiness review training, and preparation of operation and maintenance manuals.
      (f) Non-Federal contribution--None.

b. Related annual funding
   None.

2254

1. Title and Location of Project:	Master Safeguards and Security Agreement/ Material Surveillance Task Force Security Upgrades, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-125 2b. Operating Expense Funded	ADS# RF-6757

13. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. {If applicable} The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988. {If applicable} DOE has reviewed the GSA inventory of Federal Scientific laboratories and found insufficient space available, as reported by the GSA inventory.

2255

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(SITE STABILIZATION)
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Residue Elimination Project, Rocky Flats Plant, Golden, Colorado

2a. Project No.: 96-D-468 ADS# RF-6723
2b. Operating Expense Funded

3a. Date A-E Work Initiated: 1st Qtr. FY 1996

3b. A-E Work Duration: 8 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 2nd Qtr. FY 1996

4b. Date Construction Ends: 1st Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $62,400
TPC -- $87,100

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1996 *	$ 33,100	0	$ 33,100	$ 33,100
1997	25,500	0	25,500	25,500
1998	3,800	0	3,800	3,800
1999	0	0	0	0

8. Project Description, Justification and Scope

The residues which were previously generated as a result of plutonium manufacturing operations at Rocky Flats were packaged for a brief period of storage (less than 3 years) to await processing for plutonium recovery. Since the shut down of plutonium operations at Rocky Flats in 1989, these materials have been stored in temporary storage packaging. The chemical and physical forms and packaging configurations of these residue materials are known to be unsafe for extended storage, and represent a significant liability which must be reduced. On May 26, 1994, the Defense Nuclear Facilities Safety Board (DNFSB) issued its Recommendation 94-1. In this recommendation, the DNFSB found that: "Thousands of containers at the Rocky Flats Plant hold miscellaneous plutonium-bearing materials classified as "residuals," some of which are chemically unstable. Many of the containers of plutonium metal also contain plastic, and in some cases at the Rocky Flats Plant, the plastic is believed to be in contact with the plutonium. It is well known that plutonium in contact with plastic can cause formation of hydrogen gas and Pyrophoric plutonium compounds leading to a high probability of plutonium fires."

* Appropriated as construction funding

8. Project Description, Justification and Scope (continued)

The Site Integrated Program Plan (SIPP), the response to the residue concerns raised by both the DNFSB Recommendation 94-1, depends upon these projects to resolve these most pressing residue safety concerns. Higher risk residues must be treated by May 1997, and lesser risk residues by May 2002.

The timely treatment and elimination of residues at Rocky Flats has been further mandated by the Residue Compliance Agreement between DOE and the State of Colorado (Settlement Agreement and Compliance Order on Consent No. 89-10-30-01, and by Compliance Order 93-04-23-01) which requires DOE to establish the Mixed Residue Reduction Program (MRRP) and requires DOE and EG&G to "Timely and Adequately implement the MRRP" by (1) "The processing of backlog mixed residues to put them in a shippable and/or disposable form as expeditiously as reasonably possible," and (2) "Removal from the plant of the backlog mixed residues and the TRU mixed wastes generated by their processing as expeditiously as reasonably possible once a final off-site disposal facility becomes available." Approximately 65 percent of the residues to be treated by these projects are categorized as mixed and are regulated.

This project will provide the capability to treat residues so they can be stored safely onsite for a period of up to 50 years, and so they can be stored and readily prepared for shipment to the Waste Isolation Plant or other repository when it becomes available. The subprojects are, (1) Salt Residue Stabilization and Repack, (2) Combustible Residue Stabilization and Repack, (3) Ash Residue Stabilization and Repack, and (4) Wet Residue Stabilization and Repack.

a. Subproject 01 - Salt Residue Stabilization and Repack

TEC	Previous	FY 1997	Outyears	Construction Start - Completion Dates
$ 18,500	$ 17,800	$ 700	$ 0	3rd Qtr. FY 1996 - 2nd Qtr. FY 1997

This subproject will be constructed in Building 707 and will utilize existing gloveboxes and new furnace systems, associated Non-Destructive Assay (NDA) equipment and associated handling equipment. It will include use of some existing equipment, but will require structural modifications and new off-gas systems. Stabilization will be conducted via oxidation of salt in the molten state, with subsequent repackaging into metal containers. Oxidation will convert the elemental metals to their corresponding oxides, chlorides, and oxichlorides. Any hydrides or peroxides that might be present will also be converted to inert compounds. The oxidized salts will be placed in metal cans which will be welded shut and subsequently packaged into drums. The project will occupy one and one half modules in Building 707, with dedicated rooms for drum storage, NDA equipment, and drum unpacking. Special consideration must be given to design of worker protection for high radiation salt handling. FY 1997 funding will be used for Title I and II engineering project management, Title III engineering, government furnished equipment (GFE) procurements, construction, construction management, demolition and removal, and final safety analysis. FY97 funding will be used to complete construction, and to enhance interim storage.

2257

8. Project Description, Justification and Scope (continued)

b. Subproject 02 - Wet/Combustible Residue Stabilization and Repack

TEC	Previous	FY 1997	Outyears	Construction Start - Completion Dates
$ 19,100	$ 4,700	$ 14,300	$ 0	4th Qtr. FY 1996 - 3rd Qtr. FY 1997

Several treatments will be in parallel, including washing/rinsing, and thermal desorption. Plans are to install the capabilities in Building 776. Non-Destructive Assay and handling equipment will be required. Existing equipment will be used for the glove box line, with new equipment. The layout will be based upon the existing layout, and the facility will be upgraded to meet current standards. Support systems will be upgraded to meet requirements. FY97 funding will be used to complete construction, and enhance interim storage.

c. Subproject 03 - Ash and Dry Residue Stabilization and Repack

TEC	Previous	FY 1997	Outyears	Construction Start - Completion Dates
$ 14,500	$9,400	$ 5,100	$ 0	3rd Qtr. FY 1996 - 3rd Qtr. FY 1997

This system to treat and package ash and other particulate residues will be installed in Modules D and E within Building 707. The facility resulting from the project will be supported by the existing building vital safety systems (VSS), building utility systems and building personnel support systems. New processing equipment will for the most part be installed in existing gloveboxes. In some cases, existing gloveboxes and equipment will be removed to provide space for new processing equipment. The ash processing system will utilize the downdraft tables and output of feed and product materials. It will utilize the conveyor glovebox in Module E for material movement. The existing welders will not be required and will be removed to provide space treatment, Non-Destructive Assay, and packaging equipment. FY 1997 funding will be used for Title III engineering, construction, and enhancement of interim storage.

22528

1. Title and Location of Project:	Residue Elimination Project, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 96-D-468 2b. Operating Expense Funded	ADS# RF-6723

8. Project Description, Justification and Scope (continued)

d. Subproject 04 - Classified shares and interim storage system

TEC	Previous	FY 1997	Outyears	Construction Start - Completion Dates
$ 10,300	$1,200	$5,400	$3,700	4th Qtr. FY 1996 - 1st Qtr. FY 1998

This project includes constructing a capability in B-707 to destroy residues with classified shares, stabilize, and immobilize/repact. It also includes construction of interim storage capabilities within existing facilities as necessary. FY97 funding will be used to complete construction of this treatment facility.

2259

1. Title and Location of Project:	Residue Elimination Project, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 96-D-468 2b. Operating Expense Funded	ADS# RF-6723

9. Details of Cost Estimate

	Unit Cost	Item Cost	Total Cost
a. Design and management costs			$ 15,000
1. Engineering design and inspection at approximately 25 percent of construction costs, Item c		$ 7,360	
2. Construction management at 14 percent of construction cost, Item c		4,100	
3. Project management at 12 percent of construction costs, Item c		3,540	
b. Land and land rights			0
c. Construction costs			29,300
1. Improvements to land		0	
2. Buildings		0	
3. Other structures		0	
4. Utilities		0	
5. Special facilities		29,300	
(a) Special Facilities Equipment	$ 13,210		
(b) Special Facilities Installation	16,090		
d. Standard equipment (not applicable for design only request)			0
e. Major computer items			0
f. Removal cost less salvage			3,900
g. Design and project liaison, testing, checkout, and acceptance			0
Subtotal			$ 48,200
h. Contingency at approximately 29 percent of above costs			14,200
i. Total line item cost (Section 12.a.1.(a))			$ 62,400
j. Non-Federal contribution			0
Net Federal total estimated cost (TEC)			$ 62,400

2260

1. Title and Location of Project:	Residue Elimination Project, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 96-D-468	ADS# RF-6723
		2b. Operating Expense Funded	

10. Method of Performance

- The Rocky Flats Environmental Technology Site Integrating Contractor will provide project management services.
- Long lead time equipment will be procured by the Integrating Contractor, all standard items will be procured by the construction contractor.
- Architect-Engineer services will be performed by subcontracted A-E services.
- Construction will be via contract.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1997	FY 1998	FY 1999	Total
a. Total project costs					
1. Total facility costs					
(a) Line item (Section 10.i.) (design only)	$ 33,000	$ 25,500	$ 3,800	$ 0	$ 62,400
(b) Operating expense funded equipment	0	0	0	0	0
(c) Inventories	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	$ 33,100	$ 25,500	$ 3,800	$ 0	$ 62,400
2. Other project costs					
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	2,819	0	0	0	2,819
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0
(d) NEPA documentation costs	500	0	0	0	500
(e) Other project-related costs	7,449	13,607	325	0	21,381
Total other project costs	$ 10,768	$ 13,607	$ 325	$ 0	$ 24,700
Total project cost	$ 43,868	$ 39,107	$ 4,125	$ 0	$ 87,100
(f) Non-Federal contribution	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 43,868	$ 39,107	$ 4,125	$ 0	$ 87,100

2261

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--20 years)

1. Facility operating costs (included in total building costs)	$ N/A
2. Facility maintenance and repair costs (included in total building costs)	N/A
3. Programmatic operating expenses directly related to the facility	45,600
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to programmatic effort in the facility	0
6. Utility costs (included in total building costs)	N/A
7. Other costs (included in item 3)	N/A
Total related annual funding	45,600

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item--Project construction line item funding will include costs for disposal of existing equipment as identified.
   (b) Expense-funded equipment--There is no operating expense funded equipment being purchased for this project. No PE&D funds will be allocated for these projects.
   (c) Inventories--Maximum use of existing equipment and material will be made to reduce cost; no inventory cost is expected.
2. Other project costs
   (a) The costs for development projects and various studies to provide information for project concept and technical criteria are estimated to be $880,000.
   (b) Conceptual design--The conceptual design for this project will be finalized via advanced Conceptual Design.
   (c) Other project-related costs include performance of system operations testing, cost of D&D waste disposal, final start up of each project, operating spares, operating and maintenance manual development, new production supplies such as glovebox gloves, tools, etc.
3. Other related funding requirements
   (a) Facility operating costs cannot be determined since they will be included in total building costs.
   (b) Programmatic operating expenses include program management and preparation of the design criteria before project funds are available, coordination of facility upgrade and maintenance requirements, and coordination of process definition.
   (c) There is no expense-funded equipment envisioned for this.
   (d) No current inventories will be used on this project.
   (e) No cost estimate for production operation is included in item 12b (3).

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding

1. These costs have been estimated and included in total as programmatic operating expenses.

13. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

2264

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

OFFICE OF ENVIRONMENTAL RESTORATION
(SITE STABILIZATION)
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Criticality Alarm and Plant Annunciation Utility Replacement, Rocky Flats Plant, Golden, Colorado

2a. Project No.: 91-D-127 ADS# RF-6756
2b. Operating Expense Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 3rd Quarter FY 1994

3b. A-E Work (Titles I & II) Duration: 54 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $29,500
Total Project Cost (TPC) -- $31,162

4a. Date Physical Construction Starts: 1st Quarter FY 1996

4b. Date Construction Ends: 2nd Quarter FY 2002

6. Current Cost Estimate:
TEC -- $29,500 a/
TPC -- $31,162

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1991*	$ 6,600	$ 0	$ 6,600	$ 0
1992*	0	0	0	0
1993*	6,300	(4,900) b/	1,400	0
1994*	0	0	0	435
1995*	0	0	0	1,800
1996*	2,800	0	2,800	8,465
1997	1,500	0	1,500	1,500
1998	5,400	0	5,400	5,100
1999	5,400	0	5,400	5,800
2000	2,500	0	2,500	2,500
2001	1,500	0	1,500	1,000
2002	2,400	0	2,400	2,900

* Appropriated as construction funding.

a/ The funding profile was extended to FY 2002 and will extend project completion date accordingly.
b/ Reflects funding remaining in Defense Programs (DP) after DP and EM's MOA dated 8/27/93, which transferred responsibility for the project to EM in FY 1992.

2265

1. Title and Location of Project:	Criticality Alarm and Plant Annunciation Utility Replacement, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 91-D-127 2b. Operating Expense Funded	ADS# RF-6756

8. Project Description, Justification and Scope

The project provides support and disseminates information for all inter-building data transmissions, communications, security, and safety functions on plant site.

The Criticality Alarm and Plant Annunciation System Upgrade (CAPASU) project will replace the deteriorated criticality alarm systems and plant annunciation systems at the Rocky Flats Environmental Technology Site (RFETS). The criticality alarm system will be installed in buildings that contain Category one, two, and three levels of plutonium. This new system will amplify and broadcast criticality alarm signals. This is needed to ensure worker safety during the consolidation of Special Nuclear Materials (SNM) and during environmental restoration (decontamination and decommissioning) of buildings that contain fissile material. The modifications to the plant annunciation system also termed the Life Safety\Disaster Warning system (LS\DW) will ensure worker safety by upgrading the presently failing LS/DW, which provides annunciation of alarms and the dissemination of information of information plant wide. As a part of supporting the upgrades to the plant wide LS/DW system, as well as other capital line item projects on site, the CAPASU project will also install a fiber optic communications network around the plant site.

Due to the change in the mission of Rocky Flats, the CAPASU project has been phased to account for the transition to the new mission. There ar five phases that make up the CAPASU project. The buildings in each phase were selected based on their future perceived mission. The buildings whose future mission has not yet finalized have been placed in phases 3 and 4. Once the building missions are determined, the need to upgrade the buildings each phase will be evaluated during the design portion of the phase.

Phase A - installs the fiber optic communication system around the plant site. The communications system is needed to support the criticality alarm system as well as other site projects such as the Plant Fire/Security System Replacement line item, the Master Safeguards and Security Agreement line item, and the Air Monitoring Improvement line item.

Phase 1 - Installs criticality alarms and upgrades the LS/DW systems in the buildings containing plutonium on site.
Phase 2 - Installs criticality alarms and upgrades the LS/DW systems in the main alarm stations and other support buildings on site.
Phase 3 - Installs criticality alarms and upgrades the LS/DW systems in the site support and manufacturing buildings on site.
Phase 4 - Installs criticality alarms and upgrades the LS/DW systems in the rest of the site support buildings.

2266

1. Title and Location of Project:	Criticality Alarm and Plant Annunciation Utility Replacement, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 91-D-127 2b. Operating Expense Funded	ADS# RF-6756

8. Project Description, Justification and Scope (continued)

The Plant Annunciation Utility is the primary means of informing plant personnel when immediate announcements are required concerning production, security, radiation contamination, weather, or emergency situations such as fire or terrorist actions. The existing Plant Annunciation Utility is worn, failing, and inadequate to meet current production requirements and industry standards. The utility is also used to satisfy Department of Energy Order 5480.5 that requires a system in all buildings where fissile materials are handled to broadcast alarms in the event of a criticality accident. Without functioning criticality alarm systems in these buildings, production operations are stopped.

There are currently 54 documented failures (1976 - present). Out-of-service time results in periods of unsupervised system operation. Documented failures include: a) 25 failures with evacuation (400 people at 2 hours each per failure), total cost of lost time nearly $1.4 million; b) 29 failures without evacuation, 7 with duration of up to 30 days and 5 with duration of up to 36 hours, 17 with unknown duration.

From 1990 through February 1993, approximately $8.5 million (M) has been spent to maintain the existing system. A backlog of $8.3M worth of maintenance and repair (M&R) work requests has accumulated over the same time period. If resources were available, the cost to maintain the systems would have exceeded $16.8M. At the current maintenance and repair rate of increase, cost to maintain are estimated to range from $3M to $5M during FY 1996. Current compensatory measures require over 2,000 hours/month at an annual cost exceeding $2.6M (in addition to M&R costs). The purpose of the fiber optic network portion of the CAPASU project is to provide a fiber optic cable infrastructure transport facility for several vital worker safety systems and for applications groups to implement various data and voice communications applications on a plant wide basis.

The existing communication networks cannot meet the communication requirements of currently identified applications for the following reasons:

1. The triax network which would support the plant wide fire and security system on plant site to be installed by the Plant Fire and Security System Replacement project is over fourteen years old, infiltrated by water in several locations, subject to lighting induced failures, and not reliable. Repairs in some locations are extremely difficult and cost prohibitive.

2. The twisted pair phone line around plant site cannot handle the capacity requirements of the combined fire, security, Closed-Circuit Television (CCTV), Nondestructive Assay (NDA) Local Area Network (LAN), criticality alarm, and Life Safety/Disaster Warning (LS/DW) upgrades. CCTV and NDA Lan are scheduled to be ready for communication during 1995.

3. The broadband is anticipated to be saturated by 1995 and 1996. Ungerman/Bass will not provide parts for the broadband system used for data applications after 1995. After 1999 neither parts nor services will be available by Ungerman/Bass. By 1999, the upgrades to fire, security, LS/DW, and Criticality Alarms will be completed. Per current information, the existing data communication network will be at the end of its service life at the time of the turnover to the upgrades systems. This would preclude the broadband as a logical and dependable means of communications for worker vital safety systems and protection (security) of Special Nuclear Material.

9. Details of Cost Estimate

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1. Title and Location of Project: Criticality Alarm and Plant Annunciation Utility Replacement, Rocky Flats Plant, Golden, Colorado

2a. Project No.: 91-D-127
2b. Operating Expense Funded

ADS# RF-6756

	Item Cost	Total Cost
a. Design and management costs		$ 8,000
1. Engineering design and inspection at approximately 31 percent of construction costs (item c)	$ 4,670	
2. Construction management costs at approximately 15 percent of construction costs (item c)	2,340	
3. Project management at 7 percent of construction costs (item c)	990	
b. Land and land rights		0
c. Construction costs		15,200
1. Improvements to land	0	
2. Buildings	0	
3. Other structures	0	
4. Utilities	0	
5. Special facilities	15,200	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		1,300
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 24,500
h. Contingency at approximately 20 percent of above costs		5,000
i. Total line item cost (Section 12.a.1.(a))		$ 29,500
j. Non-Federal contribution		0
Net Federal total estimated cost (TEC)		$ 29,500

Note: Estimate based on March 1992 Phase A Title I estimate of Phases I-4 Conceptual Design Report estimate.

All costs were escalated using the "Anticipated Economic Escalation Rates for DOE Construction Projects" provided by the Department of Energy, Headquarters, Office of Infrastructure Acquisition, and updated in August 1994. All costs were escalated to the midpoint of the activity.

2268

1. Title and Location of Project:	Criticality Alarm and Plant Annunciation Utility Replacement, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 91-D-127 2b. Operating Expense Funded	ADS# RF-6756

10. Method of Performance

Titles I and II Design Engineering will be performed by an Architect-Engineer (A-E) working under a prime, negotiated fixed-price contract with the Operating Contractor. The design and construction of portions of this project are scheduled to be completed in phases. Construction of portions of this project will be performed by a fixed-price fixed-rate A/E Contract. Inspections and construction coordination will be performed by the Operating Contractor.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	Total
a. Total project costs									
1. Total facility costs									
(a) Line item (Section 10.i.)	$ 2,235	$ 8,465	$ 1,500	$ 5,100	$ 5,800	$ 2,500	$ 1,000	$ 2,900	$29,500
(b) Operating expense funded equipment	0	0	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	$ 2,235	$ 8,465	$ 1,500	$ 5,100	$ 5,800	$ 2,500	$ 1,000	$ 2,900	$29,500
2. Other project costs									
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	804	0	0	0	0	0	0	0	804
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0	0	0	0
(e) Other project-related costs	0	0	200	0	250	408	0	0	858
Total other project costs	$ 804	$ 0	$ 1,700	$ 0	$ 250	$ 408	$ 0	$ 0	$ 1,662
Total project cost	$ 3,039	$ 8,465	$ 0	$ 5,100	$ 6,050	$ 2,908	$ 1,000	$ 2,900	$31,162
(f) Non-Federal contribution	0	0	0	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 3,039	$ 8,465	$ 1,700	$ 5,100	$ 6,050	$ 2,908	$ 1,000	$ 2,900	$31,162

2269

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--30 to 40 years)

1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic efforts in the facility	0
5. GPP or other construction related to programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total other related annual funding	$ 0

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item--Construction line item will replace emergency annunciation utilities and criticality alarm systems.
   (b) Expense-funded equipment--None.
   (c) Inventories--None.
2. Other project costs
   (a) R&D necessary to complete construction--None.
   (b) Conceptual design--$804,000.
   (c) Decontamination and Decommissioning (D&D)--None.
   (d) Natural Environmental Policy Act (NEPA) documentation costs--None.
   (e) Other project-related costs--Include Safety Analysis Reports, Congressional project data sheets preparation and project validation, start-up testing, operational readiness review training, preparation of operation and maintenance manuals, operator training, and spare parts inventories, $858,000.
   (f) Non-Federal contribution--None.

2270

1. Title and Location of Project:	Criticality Alarm and Plant Annunciation Utility Replacement, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 91-D-127 2b. Operating Expense Funded	ADS# RF-6756

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Total related funding requirements
   1. Facility operating costs--None.
   2. Facility maintenance and repair costs--None.
   3. Programmatic operating expenses directly related to the facility--None.
   4. Capital equipment not related to construction, but related to the programmatic efforts in the facility--None.
   5. GPP or other construction related to programmatic effort in the facility--None.
   6. Utility costs--None.
   7. Other costs--None.

1. Title and Location of Project:	Criticality Alarm and Plant Annunciation Utility Replacement, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 91-D-127 2b. Operating Expense Funded	ADS# RF-6756

13. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. {If applicable} The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988. {If applicable} DOE has reviewed the GSA inventory of Federal Scientific laboratories and found insufficient space available, as reported by the GSA inventory.

2272

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Site Stabilization)
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Plant Fire/Security Alarm System Replacement, Rocky Flats Plant, Golden, Colorado

2a. Project No.: 92-D-123 ADS# RF-6755
2b. Operating Expense Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 4th Quarter FY 1993

3b. A-E Work (Titles I & II) Duration: 61 months

5. Previous Cost Estimate
Total Estimated Cost (TEC) -- $69,900
Total Project Cost (TPC) -- $74,774

4a. Date Physical Construction Starts: 1st Quarter FY 1996

4b. Date Construction Ends: 3rd Quarter FY 2000

6. Current Cost Estimate:
TEC -- $62,900
TPC -- $67,874

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1992 *	$ 5,200	$ (5,200) a/	$ 0	$ 0
1993 *	8,700	(3,800) a/	4,900	80
1994 *	0	0	0	2,334
1995 *	0	0	0	2,486
1996 *	9,560	+6,340 b/	15,900	15,900
1997	6,100	0	6,100	6,100
1998	13,300	0	13,300	13,300
1999	15,340	0	15,340	15,340
2000	7,360	0	7,360	7,360

* Appropriated as construction funding.

a/ This project was originally funded under Defense Programs. Upon transfer of the project to Environmental Management a Memorandum of Agreement was signed allowing Defense Programs to retain the funding for FY 1992 ($5,200,000) and a portion of the funding for FY 1993 ($3,800,000). This resulted in a two year delay, causing the project to be restructured with a completion date of FY 2000.
b/ Reprogramming to comply with current DOE Orders and Fire Protection Association Codes.

2273

1. Title and Location of Project:	Plant Fire/Security Alarm System Replacement, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-123 2b. Operating Expense Funded	ADS# RF-6755

8. Project Description, Justification and Scope

The new plant-wide alarm system is configured with a Central Alarm Station in Building 121, a Secondary Alarm Station in Building 765, or an alternate location in an existing facility and a Fire Alarm Station in Building 331. The Central Alarm Station will have a Central Processing Computer with console monitors, keyboards, and printers to supervise operation of the fire and security alarm systems throughout the plant. The Secondary Alarm Station will have identical equipment and will control the fire and security alarms in the event of failure of the Central Alarm Station. The Fire Alarm Station will have a console with monitors, keyboards, and printers with the capability of monitoring and controlling only fire alarm systems. The monitoring and control equipment in the Fire Alarm Station will be driven by either the Central or Secondary Alarm Stations, whichever is controlling the system at the time.

Multiplexed panels will be distributed throughout the plant at 13 main building locations (Central Alarm Building 121, Fire Station Building 331, Plutonium Recovery Building 371/374, Uranium/Beryllium Manufacturing Building 444, Plutonium Analytical Laboratory Building 559, Plutonium Manufacturing Building 707, Plutonium Manufacturing Building 771, Plutonium Manufacturing and Disassembly Building 776/777, Plutonium Development Building 779, Central Computing Facility Building 881, Uranium Processing Facility Building 883, and the Plutonium Product Warehouse Building 991). Alarm coverage within respective buildings will be zoned such that loss of a single multiplexed panel will not affect the entire system within the building.

Security alarm functions to be provided by the replacement system include perimeter, zone, and volumetric intrusion detection, and plant-wide security system tamper and system integrity monitoring. The new system will provide identification and annunciation of all individual security sensors allowing efficient and expedient assessment and response to alarms. The security alarm system to be utilized will be the ARGUS System developed by the Lawrence Livermore National Laboratory.

The new system will implement automated personnel access control throughout the controlled areas of the plant. Portal access control devices will include magnetic stripe and card readers, biometric devices, and access booths. The system will maintain a database on all enrolled personnel controlling access at each portal depending on date, time of day and requirements for the Two Person Rule. Enrollment will be accomplished at permanent enrollment stations in Buildings T120 and 131 or by a portable unit normally located at Building 762A. The access control capabilities of the ARGUS System will be utilized and integrated with the current Rocky Flats Plant (RFP) hardware configuration.

2274

8. Project Description, Justification and Scope (continued)

Fire alarm system functions include heat and smoke detection in rooms, gloveboxes, and filter plenums and fire phone systems in process buildings and outdoor plant-site locations. Fire detector types installed as part of this project include heat detectors, smoke detectors, sprinkler flow detectors, plenum flow detectors, Halon, dry chemical and Carbon Dioxide (CO_2) release, and manual pull stations. Reconfiguration of PA will reduce the existing PA to enclose only the Building 371 complex by constructing a fence line east of the building. This fence will tie into existing PA perimeter northeast and southeast of the building, and this new perimeter will be the new PA. New construction will include, but not limited to, an isolation zone with detection zone, a new access point, and a patrol road. The new fence and associated systems will be fully integrated and compatible with existing and planned systems for current PA perimeter.

PURPOSE

The purpose of this project is to replace the existing security and fire alarm systems with a modern, efficient, high reliability, cost-effective system. Components of the current RFP alarm system which meet fire and security requirements will not be replaced, and will be integrated into the new alarm system. The new system will provide a level of autonomy, efficiency, and overall performance that will greatly reduce the manpower intensive compensatory measures, frequent inspections and walk tests that characterize the current system. It will annunciate both fire and security alarms to the initiating device. This will improve the response time and efficiency of assessment/alarm response and, at the same time, enhance overall security by eliminating the ambiguities inherent in the current system. in addition, this project will reduce the enclosed area of the current PA by approximately 80 percent. This will increase autonomy, efficiency, and overall performance of the security alarm system, and it will allow the realization of substantial and recurring cost savings as part of the Special Nuclear Materials (SNM) Consolidation program. It is estimated that the payback period for the fire and security alarm upgrades is 3.1 years. The estimated payback period for the PA reduction is 1 year.

JUSTIFICATION

The existing fire and security system is outdated, requires intensive man-hour effort to operate, and is very expensive/difficult to maintain. The current system is not in compliance with DOE Orders 5632.2A, 5632.5, 6430.1A, requirements called out in the "Standards and Criteria", NFPA-71, and NFPA-72. It has grown far beyond its original design capacity and intended initiating device count. It the process, the ability to annunciate individual devices has, in many cases, been lost. In some areas, dozens of devices are "paralleled" such that they report as a single alarm. The result is that instead of checking only the individual device that alarmed, security forces are required to check, one at a time, all the devices tied together as a single alarm. Besides being inefficient and expensive, this increases the time required for complete assessment and allows more options/possibilities for surreptitious activities

2275

8. Project Description, Justification and Scope (continued)

System components, many of them manufactured in the 1950's and 1960's, are well beyond their useful lifetimes, and as a result, failures are occurring at an increasingly high rate. On several major system components, the original equipment manufacturers no longer support or service the equipment. This results in inordinate costs, efforts, delays in equipment maintenance and repair. Due to the age of the system and the inability to properly maintain it, the reliability of the overall system is questionable. Many system failures have occurred at an increasing rate in the last year which can result in risking Life Safety and Government Assets.

The schedule is based on awarding multiple construction bid sets. The benefit of this approach is to start construction sooner than would be possible if only a single construction package were issued. The Plant Fire/Security System Replacement (PFSR) project has been phased to coincide with the RFP Transition Plan. Each phase of the project is tied to a specific "Group" of buildings as defined in the Transition Plan. Each project phase is scheduled with an independent set of Key Decision points to allow potential scope change decisions to occur based on transition input.

The PFSR phases are defined as follows:

- Phase A involves the development of the core system, CAS/SAS upgrades, and buildings required for the current RFP mission (Building 371, 881, 559, 707, and buildings and facilities used for engineering, fire protection, maintenance, warehousing, utilities, personnel services and training, administration, and other support services). Buildings 371, 559, 707, and 881 are buildings designated as facilities critical to the projected Transition mission at RFP, and as such, will be upgraded as necessary to support this mission. Buildings 559 and 707 have recently undergone significant upgrades as a result of Operational Readiness Reviews (ORR) and OSE Safeguards and Security inspections. Due to this fact, it is anticipated that required upgrades within these facilities will be minimal. Additionally, while building 776/777 has been declared a surplus facility by the RFP Transition organization, activities related to size reduction must be maintained per the RFP Transition Plan. therefore, building 776/777 will be upgraded as necessary during Phase A to support the size reduction activities, however, the remainder of the building will be treated as a surplus facility within Phase D.

General comments regarding Project 92-D-123, Fire Protection within Plutonium Buildings

- Phase B involves buildings used for waste management (Buildings 374, 664 and 774).

- Phase C involves buildings now used in non-plutonium production and expected to be declared surplus in the future (Buildings 440, 444, 460, 865 and 883).

2276

1. Title and Location of Project:	Plant Fire/Security Alarm System Replacement, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-123 2b. Operating Expense Funded	ADS# RF-6755

8. Project Description, Justification and Scope (continued)

- o Phase D involves surplus buildings previously used in plutonium production. The current schedule has these buildings transitioning to waste operations status with SNM removed (Buildings 771, 776/777, 779, 886 and 991)

- o Phase E will involve reconfiguration of the PA, by reducing the enclosed area to the Building 371 complex. This is central to the SNM Consolidation program, and will allow the realization of substantial cost savings through the reduction and streamlining of protection efforts.

The first phase will include the installation of the computer equipment and software associated with the central and secondary monitoring stations, and installation of the node multiplex panels, All phases will include replacement of local fire and security system detectors, devices, and panels, and interface of these devices to the new system multiplex panels in the above buildings.

This priority approach to the phases of the PFSR Project will ensure that facilities whose mission is changing and whose alarm monitoring needs will be greatly reduced through the transition, will be modified last, eliminated unnecessary installation of fire and security alarm systems. Phases A and B are not currently affected by the RFP mission change, and Phases C and D scope will be further evaluated at specific Key decision points based on future Transition Plan details.

Scheduled work for the planning year (FY 1997) includes the following:

- o Phase A construction and equipment procurement will be completed.
- o Equipment procurement and the core system installation will be completed.
- o PA Reconfiguration design will be initiated.

2977

1. Title and Location of Project:	Plant Fire/Security Alarm System Replacement, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-123 2b. Operating Expense Funded	ADS# RF-6755

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 20,500
1. Engineering design and inspection at approximately 26 percent of construction costs, Item c	7,220	
2. Construction management costs are approximately 22 percent of construction costs (c, d, e, and f)	6,290	
3. Project management at 26 percent of construction costs (Item c)	6,990	
b. Land and land rights		0
c. Construction costs		27,370
1. Improvements to land	5,730	
2. Buildings	4,690	
3. Other structures	0	
4. Utilities	0	
5. Special facilities	16,970	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		3,910
g. Design and project liaison, testing, checkout and acceptance.		0
Subtotal.		$ 51,800
h. Contingency at approximately 21 percent of above costs		11,100
i. Total line item cost (Section 12.a.1.(a))		$ 62,900
j. Non-Federal contribution		0
Net Federal total estimated cost (TEC)		$ 62,900

Note: This estimate based on scope information provided by Engineering, Users estimates and a Conceptual Design Report estimate performed under the Basic Ordering Agreement. Hours estimates were provided by Engineering, Project Management and Construction Management.

All costs were escalated using the "Anticipated Economic Escalation Rates for DOE Construction Projects" provided by the Department of Energy, Program/Project Management Division, and updated in August 1994. All costs were escalated to the midpoint of the activity.

2278

10. Method of Performance

Title I and II Design Engineering will be performed by an Architect-Engineer (A-E) working under a prime, negotiated fixed-price contract with the Operating Contractor. The design and construction of portions of this project are scheduled to be complete in phases. Construction of portions of this project located within exclusion areas may be performed by the on-site Cost-Plus-Fixed-Fee Contractor. Construction will be performed by a contractor working under a prime negotiate fixed price contract with the Operating Contractor. Inspection and construction coordination will be performed by the Operating Contractor.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total
a. Total project costs								
1. Total facility costs								
(a) Line item (Section 10.i.)	$ 2,414	$ 2,486	$ 9,560	$ 6,100	$13,300	$15,340	$13,700	$62,900
(b) Operating expense funded equipment	0	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0	0
Total facility cost (Federal & Non-Federal)	$ 2,414	$ 2,486	$ 9,560	$ 6,100	$13,300	$15,340	$13,700	$62,900
2. Other project costs								
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	1,400	0	0	0	0	0	0	1,400
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0	0	0
(d) National Environmental Policy Act (NEPA) documentation costs	0	50	50	0	0	0	0	100
(e) Other project-related costs	0	0	0	500	2,500	200	274	3,474
Total other project costs	$ 1,400	$ 50	$ 50	$ 500	$ 2,500	$ 200	$ 274	$ 4,974
Total project costs	$ 3,814	$ 2,536	$ 9,610	$ 6,600	$15,800	$15,540	$13,974	$67,874
(f) Non-Federal contribution	0	0	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 3,814	$ 2,536	$ 9,610	$ 6,600	$15,800	$15,540	$13,974	$67,874

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11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--7 years)	$ 0
1. Facility operating costs	0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total other related annual funding	$ 0

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs
      (a) Line item--Construction line item will provide a replacement of the existing security alarm, fire alarm, and personnel access control systems and reconfiguration of the Protected Area.
      (b) Expense-funded equipment--None.
      (c) Inventories--None.
   2. Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--The conceptual design report has been prepared and will be expanded to include scope for reconfiguration of the Protected Area ($1,400,000).
      (c) Decontamination and decommissioning (D&D)--None.
      (d) NEPA documentation costs--$100,000.
      (e) Other project-related costs--Include Safety Analysis Reports, Congressional project data sheets preparation and project validation before capital funds are available, startup testing, operational readiness review training, preparation of operation and maintenance manuals, design criteria development, A/E selection operator training, and spare parts/startup supplies ($3,474,000).
      (f) Non-Federal contribution--None.

b. Related annual funding
   None.

2280

1. Title and Location of Project:	Plant Fire/Security Alarm System Replacement, Rocky Flats Plant, Golden, Colorado	2a. Project No.: 92-D-123 2b. Operating Expense Funded	ADS# RF-6755

13. **Design and Construction of Federal Facilities**

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions of Federal Employees (CFR Title 29, Chapter, XVII, Party 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6

2281

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars).

1.	Title and location of project: Savannah River (SR) Site Environmental Restoration Savannah River, South Carolina	2a. Project No. D/ND-1.4.16	
		2b. Operating Expense Funded	
3a.	Date assessment phase initiated: 1st Qtr. FY 1988	5. Previous cost estimate:	
		Total Estimated Cost (TEC):	See TPC
3b.	Duration of assessment phase: Continuing	Total Project Cost (TPC):	$1,042,219
4a.	Date remediation phase starts: 1st Qtr. FY 1988	6. Current cost estimate: (through FY 2001)	
		TEC:	See TPC
4b.	Date remediation phase ends: 4th Qtr. FY 2019	TPC:	$976,720*

7. Financial Schedule	Fiscal Year	Appropriations	Adjustments	Obligations	Costs
	Previous Years Defense	$ 323,317	$ 0	$ 323,317	$ 314,064
	Non-Defense	841	0	841	664
	Total	324,158	0	324,158	314,728
	FY 1995 Defense	110,169	0	110,169	68,687
	Non-Defense	292	0	292	455
	Total	110,461	0	110,461	63,237
	FY 1996 Defense	99,818	0	99,818	91,064
	Non-Defense	4,300	0	4,300	3,902
	Total	104,118	0	104,118	94,966

*Current cost estimate reflects appropriated dollars and FY 1996-2001 estimates.

2282

1. Title and location of project: Savannah River (SR) Site Environmental Restoration Savannah River, South Carolina

2a. Project No. D/ND-1.4.16

2b. Operating Expense Funded

7. Financial Schedule

Fiscal Year		Appropriations	Adjustments	Obligations	Costs
FY 1997	Defense	107,457	0	107,457	82,074
	Non-Defense	4,300	0	4,300	4,260
	Total	111,757	0	111,757	86,334
FY 1998	Defense	80,917	0	80,917	66,283
	Non-Defense	4,189	0	4,189	4,296
	Total	85,106	0	85,106	70,579
FY 1999	Defense	80,583	0	80,583	64,703
	Non-Defense	0	0	0	4,300
	Total	80,583	0	80,583	69,003
FY 2000	Defense	80,421	0	80,421	64,546
	Non-Defense	0	0	0	4,300
	Total	80,421	0	80,421	68,846
FY 2001	Defense	80,116	0	80,116	0
	Non-Defense	0	0	0	0
	Total	80,116	0	80,116	0
	Defense	$ 962,798	$ 0	$ 962,798	$ 745,549
	Non-Defense	13,922	0	13,922	22,144
	Total	$ 976,720	$ 0	$ 976,720	$ 767,693

1.	Title and location of project: Savannah River (SR) Site Environmental Restoration Savannah River, South Carolina	2a. Project No. D/ND-1.4.16	
		2b. Operating Expense Funded	

8. Project Description, Justification and Scope

The Savannah River Environmental Restoration Project is responsible for all aspects of assessment and remediation of facilities and sites that are no longer a part of active operations. The project is managed according to the following structure: 1) remedial actions (RAs), 2) decontamination and dismantlement (D&D), 3) surveillance and maintenance (S&M), and 4) program support. Remedial actions consist of activities required to assess and remediate surface waste sites and ground water. There are currently over 100 waste sites specifically identified to be remediated. Ground water is currently being remediated at the contaminated 3/700 Area. D&D consists of activities required to assess and decommission inactive facilities and structures. S&M consists of activities required to maintain waste sites after closure. The main closure sites currently being monitored are the M-Area Settling Basin and Lost Lake, the F/H Seepage Basins, the Mixed Waste Management Facility (MWMF), and the Metallurgical Lab Basin. Program support consists of crosscutting activities that are required to technically support the program and cannot be directly associated with one specific site or facility. For example, some program support activities are geoanalytical support, ground water modeling support, and human health/ecological risk assessment program support.

Budget Year Achievements

RA:
Continue ground water monitoring and sampling; begin assessment activities for R-Reactor, K-Reactor, seepage Basins and Coal Pile Runoff Basins; continue ground water assessment activities at the MWMF, Sanitary Landfill; continue assessment activities at the oil and chemical basins, separations basins, storage tanks, burning pits, rubble pits and piles, radioactive burial grounds, and 200 Area; continue characterization of the Burial Ground Complex and Silverton Road Waste site; continue field investigations and work plans in accordance with the Federal Facility Agreement (FFA); complete the Savannah River Technology Center (SRTC) Seepage Basin Closure; complete construction of SRTC and Vadose Zone ground water remediation project; continue operation of A/M Area Air Strippers.

D&D:
Facilities must meet EM-40 criteria before transfer. Continue current surveillance, maintenance and other activities at C. P. and R reactors.

The Heavy Water Component Test Reactor (HWCTR) facility was deactivated in 1963. Ancillary building and equipment were removed in 1994. National Environmental Policy Act documentation, asbestos removal and D&D planning will proceed in 1995. The deactivated reactor is currently scheduled for D&D. S&M activities will continue until completion of the D&D.

HWCTR is identified as a facility in the D&D facilities plan. It is currently in the S&M phase awaiting D&D.

Program Support:
Perform geoanalytical support; provide special SRTC environmental technical support; provide environmental risk assessment support; provide generic system engineering support; provide generic design engineering support; provide generic Environmental Restoration Department program management support; provide human health/ecological risk assessment program support.

2284

1.	Title and location of project:	Savannah River (SR) Site Environmental Restoration Savannah River, South Carolina	2a. Project No. D/ND-1.4.16 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

S&M:

Continue S&M on closed waste sites.

Compliance Oversight:

Provide reimbursement to the State of South Carolina for Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) oversight activities and provide funding for Georgia and South Carolina Agreements-in-Principle.

The Activity Data Sheet (ADS) costs depicted below are operating expense funded construction activities for the Environmental Restoration program based upon the given target funding.

SRTC Seepage Basin: SR-501-AA

The unit consists of four unlined earthen basins located on 2.3 acres adjacent to the SRTC complex. The unit is located next to a main access route to the A/M-Area. The basins received low-level radioactive liquid waste from the SRTC laboratories from 1954 to 1982. FY 1996 activities include completing construction and post construction activities. Completing construction includes the completion of remaining construction field activities, field inspections, and follow-up and project turnover to Environmental Restoration. Post construction activities include Westinghouse Savannah River Company (WSRC) and DOE closure certification, PE closure certification, and submittal of closure certification to the South Carolina Department of Health and Environmental Control (SCDHEC). The post construction activities also include completion of certification reports, logs, survey plats, and as-built drawings and final turnover of the facility.

F&H Area Ground Water: SR-515-AA

A pump and treat system with reinjection of treated water has been selected for remediation. Recovery wells, located down-gradient from the basins in each area, will intercept the ground water. The recovered water will be transferred to a separate treatment unit in each (F&H) area. Each unit will be designed to treat approximately 150 gpm. The currently favored treatment technology is neutralization to precipitate both heavy metals and radionuclide metals. The precipitate will be removed from the ground water by settling and filtration. After treatment, the water will be reinjected upgradient of the basins. Tritium and nitrates are not removed by the Phase I treatment system. However, reinjection allows time for the tritium to decay before the ground water outcrops to the seepline. Surface enhancements, such as contouring and planting of selected vegetation, will be used as a supplemental means of reducing infiltration and improving hydraulic control over the contaminant plumes. Required well sampling and analysis will continue during the assessment phase of the project.

2285

1. Title and location of project:	Savannah River (SR) Site Environmental Restoration Savannah River, South Carolina	2a. Project No. D/ND-1.4.16 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

L-Area Oil/Chemical Basin: SR-504-AA

The L-Area Oil and Chemical Basin operated from 1961 to 1979, and is approximately 75 feet wide and 120 feet long. Liquid wastes received by the basin were sourced from the L-Area Hot Shop via an underground pipeline, and from other reactor areas via 55-gallon drums and tanker trucks. Liquid wastes consisted of degreasing solvents. FY 1996 activities include Feasibility Study (FS) Support and Treatability Study. The FS Support will consist of revising the feasibility study based on regulators comments. The Treatability Study will consist of conducting a field demonstration of in-situ vitrification based on current plans and data.

The purpose of the Savannah River ER Project is to assess and cleanup facilities and sites that are no longer a part of active operations, including the D&D of facilities. The primary regulatory drivers are the Savannah River Site (SRS) Resource Conservation and Recovery Act (RCRA) Hazardous waste permit and the CERCLA FFA, which was signed in January 1993, but will not be fully implemented until Appendices D and E are developed, approved, and incorporated. The Hazardous waste permit lists Solid Waste Management Units (SWMUS) which must undergo RCRA Facility Investigation. The FFA describes how the SRS must comply with both the RCRA and the CERCLA and, when made effective, defines the schedule from which contaminated sites are assessed and closed. In addition to the FFA, the SRS must comply with existing settlement agreements and the Natural Resources Defense Council Lawsuit. Currently, final FFA schedules are being negotiated. D&D is primarily driven by DOE orders.

The scope of the project for FY 1996 is to complete the assessment of all sites currently identified in the FFA and begin closure activities on approximately 50% of these sites. The scope of the ground water activities is to complete the installation of remediation facilities in the 200 and 3/700 Areas and begin progress in the remediation of the 100 Areas. D&D program support activities will continue under the Surplus Facility program.

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1.	Title and location of project: Savannah River (SR) Site Environmental Restoration Savannah River, South Carolina	2a.	Project No. D/ND-1.4.16
		2b.	Operating Expense Funded

9. Method of Performance

The Management and Operating (M&O) contractor at the SRS, the WSRC, will manage and execute the entire project under the direction of DOE. Construction and procurement will be accomplished utilizing fixed-price subcontractors awarded on the basis of competitive bidding, where in the best interest of the Goverument.

The M&O contractor or another designated contractor will manage and execute the entire project. D&D will be accomplished primarily utilizing fixed-price subcontracts awarded on the basis of competitive bidding, where possible.

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 304,872	$ 86,470	$ 76,684	$ 92,971	$ 294,922	$ 855,919
2. Decontamination & Dismantlement	13,954	20,811	21,753	13,273	4,189	73,980
3. Long-term S&M	5,332	2,907	1,619	1,954	11,640	23,452
4. Landlord	0	0	0	0	0	0
5. Compliance Oversight	0	273	4,062	3,559	15,475	23,369
b. Contingency	0	0	0	0	0	0
Total	$ 324,158	$ 110,461	$ 104,118	$ 111,757	$ 326,226	$ 976,720

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

2287

WASTE MANAGEMENT - DEFENSE

PROGRAM MISSION

For nearly five decades the Department of Energy (DOE) and its predecessors, the Energy Research and Development Administration and the Atomic Energy Commission, have been generating radioactive waste from defense nuclear material production, research, and development activities. Those activities produced large quantities of waste, which was stored or disposed of in a manner that does not meet today's more stringent environmental, safety and health requirements. Much of the stored waste contains radioactive materials, hazardous chemicals, or both.

Based on recent world events and the downsizing and reconfiguration of the nuclear weapons complex, the volume of high-level and transuranic waste generated by Defense Programs over the next several years is expected to diminish greatly. However, because of that very downsizing, waste generated by the closure of facilities and acceleration of cleanup is expected to increase.

The mission of the Waste Management Program is to protect people and the environment from the hazards of DOE waste by providing an effective and efficient system to treat, store, and dispose of the waste as soon as possible. The Department has developed integrated planning strategies for each type of waste managed across the DOE complex, including: high-level waste (HLW), transuranic waste (TRU), low-level waste (LLW), mixed low-level waste (MLLW), hazardous waste (HAZ), and sanitary waste (SAN). These strategies support the waste management mission by focusing on a 10-year horizon, when much progress will be made. The strategies incorporate performance measures to evaluate progress on reducing the current backlog of waste through treatment and disposal and the ability to routinely manage new waste as generated. By 2005, each waste-type program will achieve at least half of its overall mission, with the exception of HLW. The budget supports maintaining an acceptable level of risk, while making significant progress toward mission completion in FY 1997. The following matrix summarizes the strategies for each waste type over the 10 year planning horizon.

DOE WASTE MANAGEMENT SYSTEM STATUS

WASTE TYPE	STORAGE-BASE	TREATMENT	DISPOSAL	PROGRESS TO MISSION COMPLETION EXPECTED BY 2005
HIGH-LEVEL	o 350,000 m^3 stored safely at 3 sites. o Maintenance/upgrades required	o DWPF begins treatment in 1996 o Hanford privatization strategy o Idaho planning	o Deep geologic repository	o 1,900 Canisters produced at SRS o Plans for treatment at RL, ID
TRANSURANIC	o 109,000 m^3 stored at 17 sites o Capacity added as needed	o Some treatment required for transportation o Treatment for disposal uncertain	o At WIPP beginning in 1998	o 15,100 m^3 expected to be disposed
MIXED LOW-LEVEL	o 56,000 m^3 stored at 27 sites o Waste water volume reduction ongoing o Capacity added as needed	o Some treatment in operation o FFCA process sets treatment strategy	o Site selection process underway	o 91,000 m^3 disposed or road ready
LOW-LEVEL	o 62,966 m^3 stored at 27 sites o Capacity added as needed	o Some treatment for stabilization volume reduction in place	o Disposal at 6 sites o Alternatives being re-evaluated through WM PEIS process	o 594,400 m^3 expected to be disposed
HAZARDOUS/SANITARY	o Hazardous waste temporarily stored at site of generation with permits as required o No sanitary waste is stored	o Commercial services used o Some sanitary waste treated on site	o Commercial services used o Landfills on some sites	o Ongoing treatment and disposal o Mission complete for hazardous/sanitary waste

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(dollars in thousands)

WASTE MANAGEMENT

WASTE TYPE	FY 1995 ESTIMATE	FY 1995 %	FY 1996 ESTIMATE	FY 1996 %	FY 1997 ESTIMATE	FY 1997 %
High-Level	1,137,643	61%	946,821	57%	884,684	59%
Transuranic	247,366	13%	244,572	15%	245,621	16%
Mixed Low-Level	254,882	14%	260,164	16%	210,082	14%
Low-Level	214,990	12%	196,537	12%	169,760	11%
TOTAL *	1,854,881	100%	1,648,094	100%	1,510,147	100%

* Totals include treatment, storage, and disposal only. Total does not include non-TSD activities associated with each waste type or Headquarters funding.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(dollars in thousands)

WASTE MANAGEMENT

WASTE TYPE	FY 1995 ESTIMATE	%	FY 1996 ESTIMATE	%	FY 1997 ESTIMATE	%
Treatment	841,959	45%	722,048	44%	711,083	47%
Storage	740,922	40%	657,583	40%	554,702	37%
Disposal	272,000	15%	268,463	16%	244,362	16%
TOTAL	1,854,881	100%	1,648,094	100%	1,510,147	100%

2291

WASTE TYPE STRATEGIES:

High-Level Waste

High-level waste is the highly radioactive material resulting from the reprocessing of spent nuclear fuel. It includes mainly liquid waste remaining from the recovery of uranium and plutonium from spent fuel. Currently, there are about 350,000 cubic meters of HLW in storage, with a radioactivity content of about one billion curies. Because of the high radiation level of the waste, it must be remotely-handled and heavily shielded. Also, because it generates heat on its own from radioactive decay, provisions are needed to dissipate heat, thus adding to the cost of managing this type of waste. Some tanks containing HLW at the Hanford Site are among the most urgent risks in the complex due to health and safety concerns.

The long-term objective in the management of HLW is to dispose of the radioactive portion of the waste in a geologic repository. The Waste Management Program supports activities by other DOE organizations to assure a geologic repository is completed. Near-term goals for the Waste Management Program include solidifying liquid HLW through operations of the Defense Waste Processing Facility at the Savannah River Site in South Carolina and solidification of liquid to a calcine form at the Idaho National Engineering Laboratory. In FY 1997, it is expected that between 80 and 150 canisters will be produced as a result of solidification of 1700m^3 at DWPF and 530m^3 of liquid high-level waste will be calcined at Idaho. Other actions to support the near-term goal include studies at Hanford and Idaho to determine the appropriate final waste form and technology to be used to achieve waste solidification and ultimate disposal. These activities will allow for approximately 10 percent of the overall mission of the high-level waste program to be completed by the end of FY 1997.

Transuranic Waste

Transuranic (TRU) waste is radioactive waste containing more than 100 nanocuries per gram of alpha-emitting isotopes with atomic numbers greater than 92 (uranium) and half-lives greater than 20 years. This waste is the result of fuel reprocessing and the fabrication of plutonium weapons or plutonium-bearing reactor fuels. For some TRU waste, little or no shielding is required; this is referred to as "contact-handled" TRU waste. On the other hand, there is TRU waste containing radionuclides which require shielding because of their gamma or neutron emissions. These are referred to as "remote-handled" TRU waste. There are currently about 109,000 cubic meters of TRU waste as well as alpha contaminated mixed waste in the Environmental Management inventory, representing about 2 million curies. There are six major sites where TRU waste is located: the Los Alamos National Laboratory, the Rocky Flats Environmental Technology Site, the Oak Ridge National Laboratory, and the Hanford, Idaho, and Savannah River Sites.

It should also be noted, that prior to 1970, TRU waste was considered LLW and disposed through burial. At that time, it was realized that greater confinement from the environment was needed. Since the early 1970's, TRU waste has been segregated from other radioactive waste and placed in retrievable storage. The pre-1970 waste is referred to as "buried" TRU and is managed by the Environmental Restoration Program. Waste that is able to be retrieved from storage is managed by the Waste Management Program.

PROGRAM MISSION - WASTE MANAGEMENT - DEFENSE (cont'd)

Transuranic Waste

The near-term goal of the TRU waste program is to complete regulatory requirements to allow the disposal of defense-related TRU waste at the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico, beginning in 1998. The long-term goal is to dispose of all TRU waste in this repository if it is found to be acceptable. By preparing WIPP to accept waste, DOE can further its mission to effectively manage waste. Moreover, by opening WIPP, a significant portion of this waste will be isolated from the environment and safely disposed. The majority of the activities in FY 1997 to advance the TRU program are related to opening WIPP and preparing waste for shipment to WIPP at Idaho, Los Alamos, and Oak Ridge. These activities will allow for approximately 10 percent of the overall mission of the TRU program to be completed by the end of FY 1997.

Low-Level Waste

Low-level waste is defined as any radioactive waste, which is not high-level, transuranic, spent nuclear fuel, or mill tailings. The majority of LLW is material contaminated with small amounts of radioactivity and can be contact-handled. However, a small amount can also be sufficiently radioactive as to require shielding to protect workers, the public, and the environment.

Generally speaking, LLW is disposed as it is generated. Low-level waste is currently disposed at the Los Alamos National Laboratory, and the facilities managed by the Idaho, Savannah River, Oak Ridge, Nevada, and the Richland Operations Offices; the last two sites also accept off-site LLW from the DOE Complex. Through 1994, about 3,000,000 cubic meters of LLW had been disposed at all DOE sites representing approximately 1,300,000 curies.

The near-term and long-term goals of the defense funded LLW Management Program are nearly identical: to continue disposal of LLW in an environmentally-safe manner at a pace to match generation of the waste. The benefits of this program include the disposal of very large volumes of waste in a manner which protects workers and the public, meets DOE requirements, and is cost-efficient. In FY 1997, it is expected that approximately 50,000m^3 of low-level waste will be disposed and approximately 200m^3 will be treated to allow for volume reduction-prior to disposal. These activities will allow for about half of the overall mission of the Low-Level Waste Program to be complete by the end of FY 1997.

Mixed Low-Level Waste

Mixed low-level waste consists of waste containing both hazardous (as defined by the Resource Conservation and Recovery Act) and radioactive (as defined by the Atomic Energy Act) components and is not high-level, low-level, or TRU waste. There is approximately 58,000 cubic meters of mixed low-level waste in inventory. The long-term goal for mixed low-level waste is to develop the necessary treatment and disposal capacity needed to dispose of the existing inventory as well as any newly generated waste.

2293

Mixed Low-Level Waste

The Department worked with the states, the Environmental Protection Agency (EPA), Indian Tribes, and stakeholders through the Federal Facility Compliance Act process and other mechanisms to develop a national configuration of mixed waste treatment facilities. The Department will have in place by 1997 35 Site Treatment Plans enforced by the state or EPA through compliance orders for the development of mixed waste treatment capacity. The Department is also continuing to work with the states, EPA, Indian Tribes, and stakeholders to determine location of disposal facilities. The near-term goal for mixed waste is to develop treatment capacity as outlined in the Site Treatment Plans and to complete site selection for disposal facilities. In FY 1997, it is expected that approximately 4,000 m^3 of waste will be treated at various DOE and private facilities. Many activities related to securing contracts with private vendor's will also be ongoing in FY 1997. These activities will allow for approximately 10 percent of the overall mission of the mixed low-level waste program to be complete by the end of FY 1997.

Hazardous and Sanitary Waste

Hazardous waste is defined by the Resource Conservation and Recovery Act (RCRA). It consists of waste, which because of its concentration or physical or chemical characteristics, may cause or contribute to mortality or illness or pose a substantial threat if not properly managed. Hazardous waste can be harmful to humans by chemically or physically attacking skeletal, nervous, or other bodily systems. In many ways, hazardous waste is more difficult to manage than radioactive waste because chemicals in waste may have an unknown synergistic effect and exposure cannot be easily monitored. The most common hazardous wastes generated by DOE include spent solvents, corrosives, ignitables, metals, specialty chemicals used by research and development laboratories, explosives, polychlorinated biphenyls (PCBs), and asbestos. In FY 1997, the Waste Management Program is expected to treat and/or dispose approximately 6,000 cubic meters of hazardous waste. Hazardous waste is primarily treated and disposed of by commercial vendors.

Sanitary waste is office waste, cafeteria waste, sewage, sewage sludges, plastic, wood, rubber, rags, and similar materials. Solid sanitary waste is disposed in approved sanitary landfills, and liquid sanitary waste is treated in wastewater treatment facilities prior to discharge to receiving streams. The Department uses both on-site and off-site disposal facilities for sanitary waste treatment and disposal.

The near- and long-term goals for both hazardous and sanitary waste are the same: maintain regulatory compliance while cost effectively treating and disposing of waste as it is generated. The mission of the hazardous/sanitary waste program has been realized and in FY 1997 activities continue. Efforts focusing on improvements to the efficiency of that program will be ongoing.

PROGRAM MISSION - WASTE MANAGEMENT - DEFENSE (cont'd)

The GOALS of the Defense Waste Management program are:

1) To protect public and worker safety and health and the environment from the dangers of DOE's radioactive and hazardous waste. The Program will continue to make progress on reducing long-term risk by treating waste with the goal of ultimate disposal.
2) To focus on resolving the highest risk problems in the complex while reducing infrastructure and overhead costs. There is the possibility that some lower risk requirements may not be met on time, but the Department believes this strategy is acceptable in order to meet our cost reduction goals.
3) To perform activities related to treatment and disposal, to move towards completion of mission. Ongoing treatment and disposal will continue to work off the backlog of waste, new and existing facilities will routinely treat and dispose of new waste.

The PERFORMANCE MEASURES related to these goals are:

The Office of Waste Management plans to measure success of its FY 1997 program by the amount of DOE waste it treats, stores, and disposes. Crosscuts are included showing the approximate level of funding in this budget request for these measures by various waste types.

Specific Waste Storage Activities include:

1) Maintain safe and compliant storage of over 500,000 m^3 of waste around the DOE complex.

2) Maintaining/improving safety of tank waste storage at Hanford, Washington;
   - o Resolve the urgent risks, such as the explosive gas generated in HLW Tanks at Hanford.

Specific Waste Treatment Activities include:

1) Operation of the Defense Waste Processing Facility at the Savannah River Site to reduce risk associated with storage of liquid HLW;
   - o Production of between 80 and 150 canisters at Defense Waste Processing Facility (DWPF) and process 3 million gallons of saltstone grout.

2) Operate New Waste Calcining Facility at Idaho to convert 530 cubic meters of liquid HLW into calcine.

3) Privatizing operations where economic efficiencies clearly warrant such action;
   - o Privatization of waste treatment for low-level, TRU, and MLLW at various locations throughout the complex in order to reduce the cost of "in-house" services and to stimulate the commercial sector capability.
   - o Continue operations of M-Area Vendor treatment of MLLW at Savannah River.
   - o Begin NEPA and permitting preparations for the Advanced Mixed Waste Treatment Facility at Idaho.

PROGRAM MISSION - WASTE MANAGEMENT - DEFENSE (cont'd)

Specific Waste Treatment Activities include: (cont'd)

4) Implementing Site Treatment Plans as negotiated through the Federal Facility Compliance Act process;
   - o Begin or accelerate mixed waste treatment at various DOE locations in response to the Federal Facility Compliance Act.
   - o Continue operating the Toxic Substances Control Act (TSCA) Incinerator at Oak Ridge, Tennessee, and Waste Experimental Reduction Facility (WERF) at Idaho to treat mixed low-level waste;
   - o Begin operations at Consolidated Incineration Facility (CIF) at Savannah River.
   - o Secure contracts for private vendor treatment for mixed waste at Oak Ridge and Idaho.

Specific Waste Disposal Activities include:

1) Finalizing the regulatory compliance packages for submittal to the Environmental Protection Agency and the state of New Mexico for the Waste Isolation Pilot Plant (WIPP);
   - o Achieve facility readiness for FY 1998 TRU waste receipt at WIPP.
   - o Prepare TRU waste in FY 1997 for initial shipments to WIPP beginning in FY 1998 from Idaho, Rocky Flats, and Los Alamos and in FY 2002 from Oak Ridge.

2) Low-level waste disposal - anticipated disposal is 50,000m^3 of LLW at six sites.

The following list defines the funding categories used in this budget by the Office of Waste Management. The Program is planning to change these categories in the near future to align the description of work performed to waste type.

Program Management

The regulatory environment in which the Waste Management works involves a considerable amount of oversight and review from regulatory and other federal, state, or local agencies to assure DOE meets regulatory expectations. This portion of the budget provides for support and oversight of the Waste Management Program to help assure these expectations are met. It includes strategic and long-range planning, and provides for technical expertise on Safety and Environmental documentation preparation and review. Also included here is a request for funding to address the requirements of the Federal Facility Compliance Act, Agreements-In-Principle and Payments to Local Communities, which fund agreements with states and Indian Nations, are similar in that both categories fund negotiated agreements with external groups for their oversight of the DOE Waste Management program at specified sites.

The near-term goal is to have sufficient support and oversight so that no environmental, health or safety non-compliances occur. The benefits include adequate support for management control, planning, cost reviews and identification of environment, safety or health issues, which can be dealt with in a reasoned and structured manner. It also assists and builds DOE's credibility with states and Indian Tribes whose oversight activities are funded through direct grants.

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Facility Operations and Maintenance

The Waste Management Program must treat, store, and dispose of a large volume of newly generated and inventoried waste. If no new waste was generated, the Program would need to manage the legacy waste accumulated over forty years of weapons research, development, and production. This budget category funds day-to-day operations and maintenance of existing facilities to safely treat, store, and dispose of all previously described waste types in an environmentally safe manner. The problems associated with a program this size include compliance with a wide variety of federal, state, and local, and sometimes conflicting environmental regulations.

New Facilities

This program category includes the costs of engineering studies, designs, and construction costs of new projects and modifications to existing facilities needed for waste management operations. It also includes any environmental impact documentation, Safety Analysis Reviews and Operational Readiness Review necessary to construct and begin operations of a new or substantially modified facility. Once the facility is operating, all of annual and outyear costs, including capital equipment not related to construction, will be funded under the Facilities Operations and Maintenance budget.

Defense Waste Processing Facility (DWPF)

This activity includes the management, operations, and maintenance costs for the DWPF at the Savannah River Operations Office. The DWPF hot startup is to occur in early March 1996.

Waste Isolation Pilot Plant

The Waste Isolation Pilot Plant (WIPP) was authorized by Congress in 1979 (Public Law 96-164) as the nation's first research and development facility to demonstrate the safe shipment, emplacement, and geologic disposal of defense transuranic (TRU) wastes. WIPP is currently scheduled to reach a disposal decision in 1998.

The TRU waste was a by-product of the nation's nuclear weapons research, development, production, and decommissioning activities. Originally, TRU waste was buried as low-level waste in DOE constructed landfills. Since 1970, however, TRU waste has been placed in retrievable storage pending the completion and opening of a geologic disposal facility. The WIPP site is located in southeastern New Mexico near Carlsbad, 2,150 feet underground in ancient salt beds, which provide a stable medium for disposal. In October 1992, Congress passed the WIPP Land Withdrawal Act (Public Law 102-579), which permanently transferred public lands to DOE. The act also established about 140 separate requirements for DOE and other Federal Agencies. Key among the new requirements was a new regulatory framework in which the Environmental Protection Agency (EPA) must certify WIPP's compliance with the radioactive waste disposal standards (40 CRF 191) prior to establishing WIPP as a disposal site. In October 1993, DOE initiated a revised test strategy where tests with radioactive waste would be conducted in laboratories rather than underground at WIPP. This enhanced laboratory program would collect required technical data more quickly at a lower cost. Additionally, DOE accelerated the preparation of a

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Waste Isolation Pilot Plant (cont'd)

draft compliance application document and submitted the document to the EPA in March 1995. Current major WIPP program activities include: (1) conducting an experimental program to obtain the necessary data to characterize the repository environment, including field studies, laboratory studies, engineering design, and modeling studies; (2) completing performance assessment analyses to predict the long-term behavior of the repository; (3) performing waste characterization activities to characterize WIPP waste at the generator sites; (4) preparing regulatory compliance certification packages for submittal to the EPA, the state of New Mexico, and other stakeholders to demonstrate compliance with the requirements of federal regulations (40 CFR 191, 264, and 268); and (5) maintaining the WIPP facility in compliance with DOE rules and regulations and with the necessary staffing to ensure the operational integrity of the facility. During FY 1996, one of the major activities will be the preparation of the final 40 CFR 191 regulatory compliance certification application for submission to EPA in October 1997. Also scheduled for completion is the Disposal Phase Supplemental Environmental Impact Statement Record of Decision in March 1997. The DOE anticipates EPA's issuance of the WIPP no migration determination by June 1997.

The National TRU Program was established by DOE to ensure that all TRU waste within the purview of DOE is effectively managed from generation to final disposal. This is accomplished by developing strategic plans and program guidance for TRU waste generation, characterization, certification, packaging, transport, and disposal.

Solid Waste

Funds provided under this budget category address corrective activities necessary to bring out-of-compliance defense facilities into compliance with RCRA, TSCA, provisions of the Hazardous and Solid waste Amendments, State and local ordinances, and DOE Orders. The FY 1996 funding begins physical construction of the Hazardous Waste Treatment Facility at Los Alamos National Laboratory. In response to direction from Congress, the Corrective Activities budget was combined with the Waste Management Program in FY 1996. All projects are completely funded, so there will be no future requests for new Corrective Activities.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

WASTE MANAGEMENT - DEFENSE

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Program Management	$ 117,445	$ 141,778	$ -68,709	$ 73,069	$ 30,953
Facility Operations and Maintenance	1,085,126	1,242,651	-254,330	988,321	924,532
Former Defense Program Facilities	0	171,085	-171,085	0	0
New Facilities	308,184	385,129	-27,455	357,674	184,945
Defense Waste Processing Facility	235,769	178,651	+6,104	184,755	141,945
Hanford Waste Vitrification Plant (HWVP)	0	0	+526	526	0
Waste Isolation Pilot Plant	169,804	172,700	+5,000	177,700	165,951
Subtotal, Operations & Maintenance	1,916,328	2,291,994	-509,949	1,782,045	1,448,326
Construction	278,028	183,701	-48,800	134,901	88,327
Subtotal, Waste Management	$2,194,356	$2,475,695	$-558,749	$1,916,946	$1,536,653
Corrective Activities (Solid Waste)	0	3,406	-3,406	0	0
TOTAL, Waste Management	$2,194,356	$2,479,101	$-562,155	$1,916,946	$1,536,653

Public Law Authorization:

Pub. Law 95-91, DOE Organization Act (1977)
Pub. Law 104-146, The Energy and Water Development Appropriations Act, Fiscal Year 1996
Pub. Law 104-106, National Defense Authorization Act, For Fiscal Year 1996
Pub. Law 102-579, Waste Isolation Pilot Plant Withdrawal Act

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

WASTE MANAGEMENT - DEFENSE

PROGRAM FUNDING BY SITE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
ALBUQUERQUE OPERATIONS OFFICE					
Albuquerque Operations Office (NM)	$ 19,775	$ 16,411	$ -12,191	$ 4,220	$ 0
Grand Junction (CO)	0	0	0	0	2,242
Kansas City Plant (MO)	5,143	6,067	-553	5,514	8,124
Los Alamos National Laboratory (NM)	63,284	54,957	+5,606	60,563	53,633
Pantex Plant (TX)	12,612	12,110	-861	11,249	11,047
Pinellas Plant	0	2,269	-2,269	0	0
Sandia National Laboratory (CA)	1,886	2,159	+153	2,312	1,796
Sandia National Laboratory (NM)	5,574	15,118	-2,028	15,586	13,090
Waste Isolation Pilot Plant (NM)	169,804	177,531	+169	177,700	165,951
Subtotal, ALBUQUERQUE	$278,078	$286,622	$ -9,478	$277,144	$255,883
CHICAGO OPERATIONS OFFICE					
Argonne National Laboratory (East) (IL)	$ 0	$ 407	$ -407	$ 0	$ 0
Brookhaven National Laboratory (NY)	0	0	0	0	0
Chicago Operations Office (IL)	0	5,235	-5,235	0	0
Subtotal, CHICAGO	$ 0	$ 5,642	$-5,642	$ 0	$ 0
IDAHO OPERATIONS OFFICE					
Idaho Chemical Processing Plant (ID)	$ 60,400	$111,708	$-53,113	$ 58,595	$ 43,445
Idaho National Engineering Lab (ID)	87,850	87,322	+17,897	105,219	67,337
Idaho Operations Office (ID)	7,262	12,985	-12,985	0	0
Subtotal, IDAHO	$155,512	$212,015	$-48,201	$163,814	$110,782

PROGRAM FUNDING BY SITE - WASTE MANAGEMENT - DEFENSE (cont'd)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
NEVADA OPERATIONS OFFICE					
Nevada Operations Office (NV)	$ 0	$ 2,985	$ -1,888	$ 1,097	$ 1,762
Nevada Test Site (NV)	21,553	21,486	-7,071	14,415	14,841
Subtotal, NEVADA	$ 21,553	$ 24,471	$ -8,959	$ 15,512	$ 16,603
OAK RIDGE OPERATIONS OFFICE					
K-25 Site (TN)	$ 60,631	$ 65,596	$ -11,473	$ 54,096	$ 46,530
Oak Ridge National Laboratory (TN)	60,366	53,608	+5,437	59,045	48,636
Oak Ridge Reservation (TN)	35,703	64,063	-22,661	41,402	37,144
Oak Ridge Operations Office (TN)	0	4,479	-4,500	0	0
Y-12 Plant (TN)	39,934	47,772	-10,428	37,344	31,718
Subtotal, OAK RIDGE	$196,634	$235,518	$-43,631	$191,887	$164,028
OAKLAND OPERATIONS OFFICE					
Lawrence Livermore National Laboratory (CA)	41,892	51,850	-6,146	45,704	33,009
Oakland Operations Office (CA)	2,243	6,889	- 4,571	2,318	1,095
Subtotal, OAKLAND	$ 44,135	$ 58,739	$-10,717	$ 48,022	$ 34,104
OHIO FIELD OFFICE					
Mound Plant	0	10,229	-10,229	0	0
Ohio Operations Office (OH)	0	5,314	-5,315	0	0
Subtotal, OHIO	$ 0	$ 15,543	$-15,543	$ 0	$ 0
RICHLAND OPERATIONS OFFICE					
Richland	$839,910	$922,244	$-243,912	$678,332	$465,027
ROCKY FLATS FIELD OFFICE					
Rocky Flats Plant (CO)	$ 0	$ 96,507	$-96,507	$0	$0

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PROGRAM FUNDING BY SITE - WASTE MANAGEMENT - DEFENSE (cont'd)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
SAVANNAH RIVER OPERATIONS OFFICE					
Savannah River Site (SC)	$ 614,932	$ 547,413	$ -15,257	$ 532,156	$ 485,380
HEADQUARTERS					
Headquarters (DC)	$ 43,602	$ 70,981	$ -60,902	$ 10,079	$ 4,846
SUBTOTAL, Waste Management	$2,194,356	$2,475,695	$-558,749	$1,916,946	$1,536,654
Corrective Activities (Solid Waste)					
ALBUQUERQUE OPERATIONS OFFICE					
Los Alamos	0	3,406	-3,406	0	0
TOTAL WASTE MANAGEMENT	$2,194,356	$2,479,101	$-562,155	$1,916,946	$1,536,653

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WASTE MANAGEMENT - DEFENSE

ALBUQUERQUE

I. Mission Supporting Goals and Objectives

The Albuquerque Operations Office (AL) manages seven sites in five states. The sites may be categorized into four groups: production facilities, research and development laboratories, a project office, and one waste disposal demonstration project. The production facilities include the Kansas City Plant and the Pantex Plant which were associated with the production of special materials and assembly of weapons or weapons components. The laboratories, which consist of the Los Alamos National Laboratory (LANL), Sandia National Laboratory (SNL)-New Mexico, and SNL-California have been involved in studies related to nuclear and non-nuclear weapons components. The Grand Junction Projects Office spearheads an aggressive mixed waste treatment program for all Albuquerque sites. The waste produced at these facilities include low-level, mixed, hazardous and sanitary waste streams, and small amounts of other waste from research. The primary waste management activities include storage, treatment, and disposal of waste. The last site - the Waste Isolation Pilot Plant (WIPP) funded through the Carlsbad Area Office - is a proposed underground repository facility designed to provide safe disposal of defense-generated post-1970 TRU waste.

The Albuquerque Operations Office will treat and dispose of approximately 20,000 m^3 of all waste types except high-level waste in FY 1997.

The facility which produces the largest volume of waste within AL is LANL, and its most significant waste management challenge relates to the remediation of its TRU waste storage pads. The State of New Mexico inspected the facilities and found that TRU waste was not being properly stored. The State issued a Notice of Violation, and a compliance agreement with the State has been signed. Construction of temporary storage facilities for the TRU waste began in FY 1995 supporting removal of approximately 7000 cubic meters of TRU waste from existing non-compliant storage. The FY 1997 budget provides for acceptable compliance risk at all Albuquerque sites with the exception of the LANL TRU PAD consent order with the State of New Mexico, which will have to be renegotiated. In the area of mixed waste treatment, Albuquerque will focus on developing small scale mixed waste mobile treatment units where appropriate. These units can be shared, thereby minimizing capital outlays at each site. Additionally, budget profiles for previously planned treatment facilities at LANL and the Pantex Plant have been adjusted to reflect realistic project requirements.

I. Mission Supporting Goals and Objectives - Albuquerque (cont'd)

The Waste Isolation Pilot Plant is on schedule for initial waste receipt in FY 1998, and will continue or complete many of the Land Withdrawal Act requirements in FY 1997. Major activities expected to be completed include the submission to the EPA of the final regulatory compliance certification application (40 CFR 191), issuance of a No Migration Determination by EPA, issuance of the Disposal Phase Supplemental Environmental Impact Statement Record of Decision, and preparations for start of disposal operations in FY 1998.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 9,202	$ 4,220	$ 2,242	$ -1,978	-47%
Facility Operations and Maintenance	94,241	87,855	84,560	-3,295	-4%
New Facilities	4,831	7,369	3,130	-4,239	-57%
Solid Waste	0	0	0	0	0%
Carlsbad Area Office	169,804	177,700	165,951	-11,749	-7%
TOTAL, Albuquerque	$ 278,078	$ 277,144	$ 255,883	$-21,261	-8%

III. Performance Summary

FY 1995 Accomplishments

ALBUQUERQUE

- o Commenced Site Wide Environmental Impact Statement (EIS) at LANL and continued the Pantex Plant site-wide EIS.
- o Met all FFCAct deliverables and milestones at the Albuquerque Sites.
- o Completed excavation of new remote-handled transuranic (TRU) shafts and emplaced 39 cubic meters of TRU waste in acceptable storage at LANL.
- o Implemented seven new recycling programs at Pantex including 4000 cubic yards of concrete, 6000 pounds of tungsten, 2000 pounds of nickel, and 1340 tons of sanitary plastics, paper, and cans.
- o Successfully concluded the Nevada Operations (NVO) audit and began to ship LLW from SNL-NM, Kansas City, and ITRI to the Nevada Test Site (NTS) for disposal.
- o Continued design of a High Explosive Waste Water Treatment Facility at LANL, Project No. 94-D-400.
- o Began construction of RCRA Hazardous Waste Staging Facility at Pantex, Project No. 190-D-126.
- o Completed and closed out the Industrial Waste System Project at LANL.

III. Performance Summary - Albuquerque (cont'd)

FY 1997 Planned Accomplishments

Carlsbad Area Office

o Continue base facility activities, including Environmental Safety and Health, complete the Final Safety Analysis Report for disposal, surface and underground maintenance, and stakeholder program	$98,400
o Complete preparation of final Compliance Certification Application and submit to EPA; continue tests and analysis for performance confirmation, issue the Final Environmental Impact Statement for the disposal phase, and receive the No Migration Determination from the EPA (anticipated)	41,400
o Continue activities to achieve contact-handled waste facility readiness to receive waste in FY 1998, hiring 45 additional contractor FTE's	12,500
o Continue National TRU Program activities, including waste characterization and management studies	4,800
o Continue performance improvement activities such as the electrical service construction line-item project	800
o Continue remote-handled waste plans and activities	1,100
o Continue compliance certainty activities such as waste characterization	6,951
Subtotal, Carlsbad Area Office	$165,951
TOTAL, ALBUQUERQUE	$255,883

Explanation of Funding Changes FY 1996 to FY 1997

- o Reduction due to completion of construction at several sites.
- o Low-level waste disposal shipments from Sandia, New Mexico and Pantex will be curtailed, causing a decrease.
- o Mixed Waste Treatment Program reduces mobile treatment due to new commercial capabilities.
- o WIPP decreases as significant regulatory requirements are not in FY 1996, and site budget prepares to receive waste in FY 1998.

Major Issues

- o None

III. Performance Summary - Albuquerque (cont'd)

FY 1996 Accomplishments (To Date and Planned)

Carlsbad Area Office

- Complete Land Withdrawal Act requirement for Waste Technology Study and submit to Congress.
- o Complete Land Withdrawal Act requirement for remote-handled TRU waste study and publish the findings in the Federal Register.
- o Complete collection of data needed for calculations to regulatory compliance package.
- o Complete and submit final No Migration Variance Petition to EPA.
- o Complete draft SEIS for disposal.
- o Continue the National TRU Program waste characterization and TRU waste management studies.
- o State of New Mexico issues RCRA Part B Permit (anticipated).

FY 1997 Planned Accomplishments

ALBUQUERQUE

o Continue base waste management program at seven AL sites in five States, including maintenance and operation of existing waste management facilities for treatment, storage and disposal of LLW, LLMW, TRU, Mixed-TRU's, sanitary, and hazardous wastes, characterization of backlog waste, program management and oversight activities related to budget, health and safety programs, training, and maintaining stakeholder involvement	$58,058
o Develop and operate mobile treatment units to treat legacy and newly generated mixed waste at AL and other DOE sites to comply with the FFCAct	4,851
o Operate and maintain outdated Radioactive Liquid Waste Treatment Facility and begin design on replacement facility at LANL to reduce imminent risk to workers and the environment and to meet Clean Water Act permitting requirements	6,936
o Replace faulty, leaking overhead industrial waste piping system linking the main manufacturing building and five smaller facilities to the Industrial Waste Water Pretreatment Facility at the Kansas City Plant to prevent release of hazardous materials to the environment and to achieve compliance with RCRA	2,390
o Continue on-site disposal of 6000 m^3/yr of LLW at LANL including receipt, placement, compaction, shaft, and pit excavation, inspections and maintenance	6,201
o Continue remediation and storage of 7000 cubic meters of TRU waste at LANL including retrieval of waste from non-RCRA compliant storage units and placement into RCRA compliant, monitored and retrievable storage pads and domes in order to meet Land Disposal Restriction - Federal Facility Compliance Agreement	11,496
Subtotal, Albuquerque	$89,932

III. Performance Summary - Albuquerque (cont'd)

FY 1997 Planned Accomplishments

Carlsbad Area Office

o Continue base facility activities, including Environmental Safety and Health, complete the Final Safety Analysis Report for disposal, surface and underground maintenance, and stakeholder program	$98,400
o Complete preparation of final Compliance Certification Application and submit to EPA; continue tests and analysis for performance confirmation, issue the Final Environmental Impact Statement for the disposal phase, and receive the No Migration Determination from the EPA (anticipated)	41,400
o Continue activities to achieve contact-handled waste facility readiness to receive waste in FY 1998, hiring 45 additional contractor FTE's	12,500
o Continue National TRU Program activities, including waste characterization and management studies	4,800
o Continue performance improvement activities such as the electrical service construction line-item project	800
o Continue remote-handled waste plans and activities	1,100
o Continue compliance certainty activities such as waste characterization	6,951
Subtotal, Carlsbad Area Office	$165,951
TOTAL, ALBUQUERQUE	$255,883

Explanation of Funding Changes FY 1996 to FY 1997

- o Reduction due to completion of construction at several sites.
- o Low-level waste disposal shipments from Sandia, New Mexico and Pantex will be curtailed, causing a decrease.
- o Mixed Waste Treatment Program reduces mobile treatment due to new commercial capabilities.
- o WIPP decrease as significant regulatory requirements are not in FY 1996, and site budget prepares to receive waste in FY 1998.

Major Issues

- o None

IDAHO

I. Mission Supporting Goals and Objectives

The Idaho National Engineering Laboratory (INEL) is located in southeastern Idaho and encompasses an area of about 890 square miles (2,300 square kilometers). The Idaho Operations Office manages operations at the Idaho Chemical Processing Plant (ICPP), the Radioactive Waste Management Complex (RWMC), the Waste Reduction Operations Complex (WROC), and the Test Area North (TAN) for the Waste Management Program. Idaho manages all waste types and has developed strategies to make progress on each waste type. In FY 1997 85,000 m^3 of waste will continue to be safely stored. A recent settlement agreement with the State of Idaho requires much progress to be made in preparing waste for eventual disposal. Activities to be focused on include treatment of 530 m^3 of liquid high-level waste for safe storage, treatment of approximately 400 m^3 of low-level and low-level mixed waste at the Waste Experimental Reduction Facility and securing contracts for operation of a major treatment facility, which will begin treatment of TRU and alpha contaminated mixed low-level waste in future years.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 9,631	$ 3,160	$ 1,960	$ -1,200	-38%
Facility Operations and Maintenance	129,815	137,677	94,148	-43,529	-32%
New Facilities	16,066	22,977	14,674	-8,303	-36%
TOTAL, Idaho	$155,512	$163,814	$110,782	$-53,032	-32%

III. Performance Summary

FY 1995 Accomplishments

- o Consolidated five contractors at the INEL into one (Lockheed) to better integrate program planning, management, and save significant funding over the next five years.
- o Completed construction of five Resource Conservation and Recovery Act compliant Waste Storage Facility modules and began moving TRU waste into those modules.
- o Restarted operating Waste Experimental Reduction Facility (WERF) at Waste Reduction Operations Complex (WROC) and incinerated 1,992 ft^3 of MLLW and 3,643 ft^3 LLW.
- o Issued the "DOE Spent Nuclear Fuel Managment and Idaho National Engineering Laboratory Environmental Restoration & Waste Management Programs Final EIS and Record of Decision".

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III. Performance Summary - Idaho (cont'd)

FY 1995 Accomplishments

- o Completed installation of high-level liquid waste evaporator at the Idaho Chemical Processing Plant (ICPP).
- o Issued the proposed Site Treatment Plan for mixed waste at INEL in accordance with the Federal Facility Compliance Act.
- o Initiated construction of the Transuranic Storage Area Retrieval Enclosure Facility.
- o Continued treatment/decontamination of mixed waste at WERF, including cask dismantlement, lead decontamination, and LLW volume reduction/compaction.

FY 1996 Accomplishments (To Date and Planned)

- o Initiate chargeback incentive system for LLW Treatment and Disposal.
- o Complete Federal Facility Compliance Act Consent Order Negotiations with the State of Idaho.
- o Continue Mixed Waste Incineration of MLLW and LLW at WERF.
- o Complete construction of remaining Waste Storage Facilities at RWMC.
- o Complete High-Level Waste Tank Farm Upgrades to meet Consent Order at ICPP.
- o Complete construction of Transuranic Storage Area Retrieval Enclosure at RWMC.
- o Commence High-Level Liquid Waste Evaporator operation at ICPP.
- o Issue Request for Proposal for private sector treatment of TRU and Alpha Mixed Waste, and select contractor.
- o Inspect at least one Tank Farm tank using the Light Duty Utility Arm Robot at ICPP.
- o Treat 48 HEPA filters through Filter Leach.

FY 1997 Planned Accomplishments

o Restart the New Waste Calcining Facility to process 140 thousand gallons of liquid HLW into more stable form at ICPP	$ 48,334
o Complete reconfiguration of stored TRU waste into RCRA compliant storage to meet Consent Order requirements; and accelerate characterization, examination, and certification of stored TRU waste in support of Agreement with State of Idaho	19,024
o Continue Mixed LLW and LLW treatment via WERF incinerator to work off 6,500 cubic feet of inventory at WROC	18,246
o Begin Phase I of the private sector treatment of TRU and alpha mixed waste to provide cost effective TRU treatment with potential benefits to WIPP facility performance evaluation	3,100
o Dispose of approximately 6,000 m^3 of LLW, and perform storage, sizing, and compaction operations for waste volume reduction	22,078
TOTAL, IDAHO	$110,782

III. Performance Summary - Idaho (cont'd)

Explanation of Funding Changes FY 1996 to FY 1997

- Decrease in funding from FY 1996 to FY 1997 is a result of completion of line-item projects in FY 1996 (High-Level Waste Tank Farm Upgrade and the Transuranic Storage Area Retrieval Enclosure project).
- Approximately $30M of the FY 1997 reduction is because of one-time settlement fee payment for Fort St. Vrain Dry Fuel Storage Facility in Colorado and ramp down of Settlement Agreement and Site Treatment Plan activities.

Major Issues

- None

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NEVADA

I. Mission Supporting Goals and Objectives

The Nevada Operations Office (NV) manages the waste management program at the Nevada Test Site (NTS). The NTS covers about 1,350 square miles (3,500 square kilometers) and is located about 65 miles (100 kilometers) northwest of Las Vegas, Nevada. The primary mission for NTS is testing nuclear devices. The major waste management activity at NTS is disposal of offsite low-level radioactive waste. The site also stores 610 m^3 of TRU waste. The NTS is key in the completion of the overall mission of the EM program.

The NTS is the Nation's largest volume LLW disposal site (commercial or DOE). In 1994 and 1995, 85 percent of the DOE complex offsite LLW was disposed at NTS. Over 500,000 cubic meters of LLW has been disposed at NTS from the beginning of operations through 1995.

In FY 1997 the site has estimated to dispose of 23,000 m^3 of low-level waste. The majority of this waste comes from offsite. Activities will also continue leading towards a permitted mixed waste disposal facility.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 4,762	$ 565	$ 2,010	$ +1,445	+255%
Facility Operations and Maintenance	10,412	8,513	14,033	+5,520	+65%
New Facilities	6,379	6,434	560	-5,874	-91%
TOTAL, Nevada	$ 21,553	$ 15,512	$ 16,603	$ +1,091	+7%

III. Performance Summary

FY 1995 Accomplishments

- o 24,400 m^3 of LLW was emplaced in shallow land disposal in FY 1995.
- o Performed 32 Radioactive Waste Acceptance Program Audits/Surveillances in FY 1995. (Approval pending from Nevada's Waste Management Program for 6 waste generators for disposal at NTS as of July 1995.)
- o Completed TRU Pad Cover Building.
- o Completed draft Safety Analysis Report for Areas 3 and 5 Radioactive Waste Management Sites.
- o Established Community Advisory Board.

III. Performance Summary - Nevada (cont'd)

FY 1996 Accomplishments (To Date and Planned)

- o Operate two Radioactive Waste Management Sites at NTS for the disposal of bulk and containerized LLW from the DOE complex.
- o Begin reconstruction of road to the Radioactive Waste Management Site.
- o Complete NTS site-wide EIS.
- o Performed ten Radioactive Waste Acceptance Audits/Surveillances in support to receive offsite generators waste and dispose it at NTS facility.

FY 1997 Planned Accomplishments

o Fund Waste Management Program, including disposal of waste generated on-site, TRU storage, and other waste management efforts	$13,559
o Continue LLW disposal operations for approved offsite generators	3,044
o Complete road reconstruction with carryover funding	0
TOTAL, NEVADA	$16,603

Explanation of Funding Changes FY 1996 to FY 1997

- o No new projects will be initiated.
- o Continue with performance assessment and site characterization activities.

Major Issues

- o None

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OAKLAND

I. Mission Supporting Goals and Objectives

The Oakland Operations Office manages waste operations at the Laboratory for Energy-Related Health Research (LEHR), Lawrence Berkeley National Laboratory (LBNL), Lawrence Livermore National Laboratory (LLNL), the Energy Technology Engineering Center (ETEC), and the Stanford Linear Accelerator Center (SLAC). The facilities perform a number of diverse research and development activities. Only LLNL is funded from the Defense Appropriation.

The Lawrence Livermore National Laboratory is an energy research and weapons development laboratory. Compliant storage, treatment, and offsite shipment for disposal of both legacy and currently generated hazardous and radioactive waste is the primary objective of the Waste Management program at LLNL.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 2,243	$ 2,068	$ 1,095	$ -973	-47%
Facility Operations and Maintenance	31,203	23,737	20,509	-3,228	-14%
New Facilities	10,689	22,217	12,500	-9,717	-44%
TOTAL, Oakland	$ 44,135	$ 48,022	$ 34,104	$-13,918	-29%

III. Performance Summary

FY 1995 Accomplishments:

- Began Title I design for both the Decontamination Waste Treatment Facility (DWTF), Project No. 86-D-103, and the Mixed Waste Management Facility (MWMF).
- Continued Program Management to support FFCAct, waste minimization, and other requirements.
- Continued to operate and maintain existing treatment and storage facilities for hazardous, mixed, low-level radioactive and transuranic waste, and characterize and repackage hazardous and LLW for offsite shipments.
- Continued the construction of the Sanitary Sewer Rehabilitation project, Project No. 92-D-402, and the Tank Upgrades project, Project No. 92-D-403.

III. Performance Summary - Oakland (cont'd)

FY 1996 Accomplishments (To Date and Planned)

- o Begin construction of the DWTF and long lead procurement for MWMF.
- o Continue Program Management to support FFCAct activities and other requirements.
- o Continue to operate and maintain existing treatment and storage facilities for hazardous, mixed, low-level radioactive and transuranic waste, and characterize and repackage hazardous and LLW for offsite shipments.
- o Complete construction of the Sanitary Sewer Rehabilitation project and the Tank Upgrade project, using prior year funds.

FY 1997 Planned Accomplishments

o Continue construction of DWTF and initiate fabrication of MWMF	$12,500
o Continue Program Management to support FFCAct activities and other requirements	1,095
o Continue to operate and maintain existing treatment and storage facilities for hazardous, mixed, low-level radioactive and transuranic waste, and characterize and repackage hazardous and LLW for offsite shipment	20,509
TOTAL, OAKLAND	$34,104

Explanation of Funding Changes FY 1996 to FY 1997

- o Reduction to Mixed Waste Management Facility due to completion of long-lead procurement in FY 1996.
- o Elimination of backlog of legacy waste through treatment and disposal in FY 1996 reduces funding requirement in FY 1997.

Major Issues

- o None

OAK RIDGE

I. Mission Supporting Goals and Objectives

The Oak Ridge Operations Office in Oak Ridge, Tennessee, manages the K-25 Site (formerly Oak Ridge Gaseous Diffusion Plant), the Oak Ridge National Laboratory (ORNL), and the Oak Ridge Y-12 Plant for the Waste Management Program at the Oak Ridge Reservation (ORR). The ORR has a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Federal Facility Agreement (FFA); and an unilateral order for Resource Conservation and Recovery Act Land Disposal Restrictions (RCRA LDR).

The Oak Ridge Reservation manages all waste types with the exception of high-level waste. The site does manage over 70 percent of DOE's remote handled TRU waste, which presents problems similar to high-level waste. The site continues to make progress towards mission completion of all waste types. Approximately 1,000 m^3 of mixed low-level waste will be treated by the TSCA incinerator. 900 m^3 of low-level waste will be disposed on-site, off-site, or in a commercial facility. Major activities leading preparation of the remote handled TRU for shipment to WIPP will be underway in FY 1997. The site expects to be shipping TRU waste to WIPP in 2002. Activities leading towards securing a broad-spectrum privatized facility for the treatment of mixed low-level waste will be underway. It is expected that this facility will provide major capacity to meet the needs of the DOE complex. A significant accomplishment in FY 1997 for Oak Ridge will be the treatment of some mixed low-level waste by private companies, which is expected to reduce costs to DOE. The ORR is planning to build facilities for limited onsite disposal of LLW. Hazardous waste, is either treated on site, if economical, or sent off site for treatment and disposal by the private sector.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 11,481	$ 15,698	$ 2,989	$ -12,709	-81%
Facility Operations and Maintenance	141,088	150,197	150,647	+450	0%
New Facilities	44,065	25,992	10,392	-15,600	-60%
TOTAL, Oak Ridge	$196,634	$191,887	$164,028	$-27,859	-15%

III. Performance Summary

FY 1995 Accomplishments

- Operated and maintained over 100 treatment, storage, and disposal facilities for sanitary, hazardous, radioactive, and mixed waste in compliance with local, state, and federal safety and environmental requirements and regulations.
- Implemented off-site shipment procedures for over 300 m^3 of polychlorinated biphenyl (PCB) contaminated light ballasts and capacitors.

III. Performance Summary - Oak Ridge (cont'd)

FY 1995 Accomplishments - (cont'd)

- o Reduced radiation areas by 16,400 square meters, which avoids costs of over $1,000,000 annually.
- o Completed the following line-item projects: Y-12 Plant Steam Plant Ash Disposal facility, a corrective activity (on schedule and budget); K-25 Site K-1515 lagoon to meet National Pollutant Discharge Elimination System permit (three months ahead of schedule and $300,000 under budget): Y-12 Sanitary Landfill, phase I closure (ahead of schedule and $600,000 under budget).
- o Began construction of the Melton Valley Liquid LLW storage capacity increase line-item project (94-D-404) at ORNL.
- o Reduced uncosted by $29,000,000 and saved over $4,000,000 through cost efficiency improvements for managing projects and recycling initiatives.
- o Treated 1,610 m^3 of mixed waste/PCB-contaminated liquid waste in the TSCA Incinerator.
- o Submitted the Proposed Site Treatment Plan (STP) for mixed waste to the state as required by the FFCAct. Mixed TRU waste is emphasized in the proposed STP.
- o Replaced planned Mixed Waste Treatment Facility with privatization of treatment combined with general plant projects.
- o Implemented the Mixed Waste STP to comply with the FFCAct.
- o Continued operating existing waste management facilities in compliance with environmental regulations.

FY 1996 Accomplishments (To Date and Planned)

- o Continue activities to meet requirements of the FFA regarding liquid LLW tank systems at ORNL.
- o Complete the Plant Drains Wastewater Treatment upgrades (93-D-174) at Y-12 and rehabilitation of the sanitary sewer collection system at K-25; continue construction of the Melton Valley Storage Tank Capacity Increase project (94-D-404) for remote-handled (RH) TRU waste at ORNL.
- o Convert TSCA Incinerator to burn soft solids (such as cardboard boxes); treat 1,500 m^3 of liquid waste and 118 m^3 of solid waste.
- o A draft request for proposal will be published for private sector treatment of remote-handled transuranic sludge.
- o Initiate construction of Industrial Landfill V and construction/demolition Landfill VII, Phase II, Project No. 95-D-405.

FY 1997 Planned Accomplishments

- o Continue safe and regulatory compliant operation and maintenance of treatment, storage, and disposal facilities for sanitary, hazardous, radioactive, and mixed waste; treat 760 m^3 of liquid waste and 240 m^3 solid waste at the TSCA Incinerator; treat 500,000 m^3 of wastewater on a just-in-time basis; transport and track waste; characterize waste and certify waste acceptance criteria are met; prepare facility safety assessment documents $116,681
- o Continue construction of the Melton Valley LLW Storage Capacity Increase line-item project (94-D-404) at ORNL 6,795

III. Performance Summary - Oak Ridge (cont'd)

FY 1997 Planned Accomplishments - (cont'd)

o Perform FFA required leak testing of active LLW tank systems, and surveillance and maintenance of inactive LLW tank systems at ORNL	5,395
o Fund private sector Mixed Waste Treatment Program, to meet schedules in the FFCAct STP	23,460
o Continue construction of Industrial Landfill V and construction/demolition Landfill VII, Phase II, Project No. 94-D-405	350
o Implement characterization and Solid Waste Storage Area 5N closure, award contract to prepare remote-handled sludge for shipment to WIPP	11,347
TOTAL, OAK RIDGE	$164,028

Explanation of Funding Changes FY 1996 to FY 1997

- o Staff reorganization to reduce management redundancies and staff reductions will provide additional savings to reduce Program Management cost.
- o Completion of several construction projects has reduced the New Facilities funding level. Funding for new construction projects has been deferred in favor of using private sector treatment options and off-site disposal.

Major Issues

- o None

RICHLAND

I. Mission Supporting Goals and Objectives

The Richland Operations Office (RL) manages the Hanford Site, which is located on 560 square miles (1,450 square kilometers) in southeastern Washington. Hanford was among the first facilities constructed by the Manhattan Project. Historically, the Hanford mission was plutonium production, reactor and processing operations and research related to advanced reactors, energy technologies and basic sciences. All production activities ceased in 1989. Today the Hanford waste management mission is to safely and efficiently cleanup the previously generated, stored waste, often referred to as legacy waste.

The Hanford site manages large amounts of all waste types. A major priority with the site has been the safe storage of high-level waste as well as building the infrastructure to stabilize the high-level waste for disposal. Progress is being made on all waste types at varying rates. In FY 1997 7,400 m^3 of low-level waste will be disposed onsite. The Waste Receiving and Processing Facility (WRAP I) will begin treating low-level waste for disposal. Approximately 17,000 m^3 of transuranic (TRU) waste is retrievably stored at Hanford awaiting funding to retrieve, process and ship to the Waste Isolation Processing Plant (WIPP).

The Waste Management Program will manage current and future solid waste and liquid effluent streams in a safe, responsible, cost effective, and legally compliant manner. In FY 1997 the liquid Effluent Program will treat and dispose of 13,000m^3 of process condensate from the 242-A Evaporator through the Effluent Treatment Facility, dispose of about 900,000m^3 of treated effluent through the 200-Area Treated Effluent Disposal Facility, and 400,000 m^3 of non-radioactive process wastewater through the 300-Area Treated Effluent Disposal Facility. Analytical laboratories will provide site-wide characterization needs, e.g., providing data to perform necessary safety analyses for safe operations at the tank farms and other facilities. The site-wide decontamination services will provide decontamination, volume reduction, packaging services, equipment repair, liquid waste Tank Car maintenance and certification, and storage of spent fuel elements and other wastes.

The highest priority waste problem at Hanford is the High-Level Waste (HLW) Tanks. The 177 HLW tanks hold about 260,000 cubic meters of HLW, which represent about 200 million curies of radioactivity. Release of these materials could present significant hazards to workers, the general public, or the environment. Safety concerns and system deficiencies are being addressed to reduce potential health, safety, and environmental risks.

Since some tanks are known to have leaked in the past, most of the pumpable liquid has been removed and transferred to double-shell tanks. Completion of this activity is expected in 1996. In the past two years, Richland expanded activities related to reducing risks, including ferrocyanide mitigation, flammable gas and organic tank programs. Additional instrumentation was added to selected tanks to improve monitoring capabilities, further reducing risk.

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II. Funding Schedule - Richland (cont'd)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 29,976	$ 37,279	$ 15,811	$ -21,468	-58%
Facility Operations and Maintenance	375,796	332,128	281,472	-50,656	-15%
Hanford Waste Vitrification Plant	0	526	0	-526	-100%
New Facilities	434,138	308,399	167,744	-140,655	-46%
TOTAL, Richland	$839,910	$678,332	$465,027	$-213,305	-31%

III. Performance Summary

FY 1995 Accomplishments

- o Negotiated extensive changes to Tri-Party Agreement (TPA) to reflect significant schedule, cost, and technology advantages, and to improve the project strategy.
- o The 242-A Evaporator reduced HLW volume by 7.2 million gallons, which contributed to the decision to delay construction of new tanks.
- o Initiated and completed Phase I of the melter testing of LLW vitrification system to demonstrate the viability of vitrification as a suitable low-level tank waste treatment.
- o Began construction of Tank 106-C Retrieval process meeting TPA requirements.
- o Completed construction and initiated operation of 200- and 300-Area Treated Effluent Disposal Facilities, which meets TPA milestones.
- o Interim stabilization of 114 of 149 single-shell tanks (complies with Wyden Amendment).
- o Transported all 309 cesium capsules from IOTECH, Colorado, to Hanford.
- o $355M cost savings validated by major accounting firm.

FY 1996 Accomplishments (To Date and Planned)

- o Support safe operations and essential maintenance of tank farms.
- o Continue double-shell tank upgrade program to ensure safe storage of HLW and refurbishing the infrastructure that supports safe storage.
- o Implement revised tanks characterization strategy for safety issue resolution, tank farm operations, and disposal milestones.
- o Start hot operation of Effluent Treatment Facility, which will reduce the liquid volume in the double-shell tanks.
- o Support development and completion of draft and final Tank Waste Remediation System Environmental Impact Statements and Records of Decision.
- o Complete Final Safety Analysis Report for Tank Farms and Implement Safety Management System.
- o Complete construction of Waste Receiving and Processing, Module 1 facility.
- o Award radioactive mixed waste stabilization contract in support of TPA.

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III. Performance Summary - Richland (cont'd)

FY 1997 Planned Accomplishments - (cont'd)

o Complete resolution of safety issues for high-heat and ferrocyanide and continues addressing flammable gas and organic tank issues	$48,665
o Complete construction of Cross-Site Transfer Line, complete construction and begin operation of tank farm ventilation upgrades, maintain safe storage and RCRA compliance for high-level tank farm operations.	128,135
o Continue to accelerate characterization of tank waste in support of the TPA and DNFSB Recommendation 93-5	63,995
o Continue efforts on HLW pretreatment and tank waste storage and disposal	11,000
o Continue tank waste retrieval program for 177 underground storage tanks, which is necessary for treatment of waste	19,495
o Provide tank farm program management including support for baselining, ES&H activities, Tank Waste Remediation System-EIS, and systems engineering	33,869
o Start-up Waste Receiving and Processing Module (WRAP I) and support base operations of storage and disposal of low-level, mixed, TRU, and hazardous wastes	32,327
o Maintain minimum compliant operations and upgrades of liquid effluent treatment, storage, and disposal facilities	23,700
o Maintain minimum compliant operations of T-Plant decontamination and cleanout activities necessary for site-wide decontamination services	24,173
o Maintain analytical services including base funding for two on-site laboratories	37,500
o Support Hanford Environmental Management Program including TPA integration and RCRA Groundwater Monitoring, Air Monitoring, and Monitoring Well Maintenance Program Management	27,311
o Support PNL Waste Management, Surveillance and Maintenance	14,857
TOTAL, RICHLAND	$465,027

Explanation of Funding Change FY 1996 to FY 1997

- o Decreased funding reflects removal of Privatization from the Waste Management Program. ($50M)
- o Decreased funding reflects reduction to tank farm operations and maintenance and upgrades. ($45M)
- o Decreased funding reflects removal of support services from the Waste Management Program. ($23M)
- o Decreased funding reflects reductions in the Tank Waste Remediation System Program including LLW disposal, waste retrieval, program management, characterization, storage and disposal, and HLW programs. ($64M)
- o Decreased funding reflects reductions in the Solid Liquid Waste Program including liquid effluents, waste disposal, PNL activities, and WRAP I. ($31M)

2320

SAVANNAH RIVER

I. Mission Supporting Goals and Objectives

The Savannah River Site (SRS), located near Aiken, South Carolina, has produced nuclear materials for national defense purposes. As one of DOE's larger sites, it includes 5 nuclear reactors, 2 chemical separation plants, a fuel and target fabrication facility, a tritium processing facility, 2 high-level waste tank farms, a heavy water rework plant, the Savannah River Technology Center, low-level waste storage and disposal facilities, and a HLW treatment facility: the Defense Waste Processing Facility (DWPF). Savannah River has about 126,900 cubic meters of HLW in the form of liquid, sludge and salt cake. This volume represents about 630 million curies of radioactivity. Storage and treatment of HLW requires significant shielding and remote-handling capabilities.

The site also manages varying amounts of all other waste types. Progress is being made towards mission completion for all waste types. Approximately 1,600 m^3 of mixed low-level waste will be treated by a private vendor in FY 1997. Operations of the Consolidated Incineration Facility will be initiated in FY 1997. This facility is expected to treat Savannah river's current inventory of mixed waste as well as future mixed waste expected to be generated by the operations of DWPF. 2500 m^3 of low-level waste will be volume reduced and disposed on-site in FY 1997. Activities leading towards a decision on the preferred part for treatment of the TRU waste will be ongoing in FY 1997.

A HLW System Plan has been prepared to outline the strategy for safe and efficient management of SRS HLW. The HLW System Plan integrates management of existing and new facilities to stabilize HLW for final disposal and to empty storage tanks so they can be removed from service. Included in the Plan are operating constraints, planning base issues, assumptions, integrated schedules and contingency analyses. The Plan describes three near-term programs: 1) operation of two HLW evaporators to provide more available volume in the tank farms, 2) support/preparations for DWPF startup, and 3) startup of the In-Tank Precipitation (ITP) facility to provide feed for DWPF. Extended Sludge Processing (ESP) will continue to operate and provide feed for DWPF. Facilities are being constructed to remove liquid waste from storage tanks and provide it to ITP or ESP for processing. The ITP commenced operations in FY 1995. During FY 1995, startup testing at DWPF involving the use of simulated wastes has been completed and final preparations made for the start of radioactive operations in early 1996. Construction on the Replacement High-Level Waste Evaporator will continue in order to provide a reliable evaporation capability at the Savannah River Site, to avoid the need to build new tanks by concentrating dilute wastes, and to allow retirement of older evaporator systems. Challenges and uncertainties include the need to test and startup first-of-a-kind facilities, maintaining available waste storage space, increasing the processing rate and managing a highly-complex interdependent system.

During 1997 the DWPF will complete its transition from startup phase to operation. The full performance capacity of the DWPF is 400 canisters per year (80 percent of maximum capacity of 500 canisters per year). Experience gained during the operation of DWPF in FY 1996 will allow for a managed increase in canister production rate in FY 1997. Projected rates in FY 1997 are a range of 80 to 150 canisters. Over the next several years the production rate should approach the 400 canisters per year rate based on experience gained in FY 1996, 1997, and 1998.

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II. Funding Schedule - Savannah River (cont'd)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 6,548	$ 0	$ 0	$ 0	0%
Facility Operations and Maintenance	294,002	275,477	289,513	+14,036	+5%
New Facilities	78,613	71,924	53,922	-18,002	-25%
Defense Waste Processing Facility	235,769	184,755	141,945	-42,810	-23%
TOTAL, Savannah River	$614,932	$532,156	$485,380	$-46,776	-9%

III. Performance Summary

FY 1995 Accomplishments

Savannah River Site

- o Approved and started-up radioactive operations of the In-Tank Precipitation (ITP) facility.
- o Started-up the E Area LLW Disposal Vaults.
- o Issued Records of Decision for the DWPF Supplemental EIS.
- o Certified all on-site LLW Generators in accordance with Waste Acceptance Criteria of the E-Area Vaults.
- o Signed consent order with the state of South Carolina to implement the FFCA Site Treatment Plan.

Defense Waste Processing Facility

- o Initiated DWPF Waste Qualification Run testing phase.

FY 1996 Accomplishments (To Date and Planned)

Savannah River Site

- o Issued Record of Decision for the Waste Management EIS.
- o Will comply with the South Carolina Department of Health and Environmental Control (SCDHEC) on implementation of STP under the FFCAct.

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III, Performance Summary - Savannah River (cont'd)

FY 1996 Accomplishments (To Date and Planned)

Savannah River Site - (cont'd)

- o Started-up the New Waste Transfer Facility.
- o Continue operation of ITP, after resolution of technical issues, to provide precipitate feed for DWPF and tank space to support DWPF recycle and material stabilization.
- o Completed washing of sludge Batch #1a at Extended Sludge Processing to be fed to DWPF.
- o Begin demonstration of alternate waste removal techniques for salt in High-Level Waste Tanks.
- o Initiate development of Tank Closure Criteria.

Defense Waste Processing Facility

- o Commence DWPF radioactive operation, a critical milestone to the success of the HLW program.

FY 1997 Planned Accomplishments

Savannah River Site

o HLW/Solid Waste System Safe Operation (high-level waste, transuranic waste, hazardous waste, mixed low-level, low-level radioactive, and sanitary). Includes the following major activities: F & H Area Tank Farms; In-Tank Processing (surveillance and maintenance); F/H Effluent Treatment Facility; and Solid Waste Management Facility;	163,188
o Consolidated Incineration Facility Operation (perform trial burn, start operations, and treat of 1.2 million pounds of mixed low-level and low-level radioactive waste)	19,760
o Federal Facility Compliance Act commitments including completion of M-Area sludge vitrification and clean closure activities	21,579
o HLW System planned attainment including pretreatment and DWPF feed support (80-150 canisters per year). Includes the following Components: In-Tank Processing (pretreatment operations); High-Level Waste Removal From Filled Waste Tanks (93-D-187); Replacement High-Level Waste Evaporator (89-D-174); and Tank Farm Services Upgrade (96-D-403); complete closure activities on one HLW Tank	138,908
Subtotal, Savannah River	$343,435

III. Performance Summary - Savannah River (cont'd)

FY 1997 Planned Accomplishments

Defense Waste Processing Facility

o Safe operation and maintenance	65,250
o Continue radioactive operation of the DWPF in support of HLW system planned attainment	76,695
Subtotal, Defense Waste Processing Facility	$141,945
TOTAL, SAVANNAH RIVER	$485,380

Explanation of Funding Changes FY 1996 to FY 1997

Savannah River Site

- Increase in FY 1997 for Facility operations and maintenance is due to more emphasis on removing HLW from tanks and preparing it for treatment and improving the attainment of the HLW system.
- Reduction in New Facilities is due to full transition of the Consolidated Incineration Facility (CIF), a new facility, into operations and maintenance, and deferral of the next generation of LLW vaults, made possible by achieving greater volume reduction of LLW.

Defense Waste Processing Facility

- Decrease in FY 1997 funding is due to a reduction in start-up personnel and activities as DWPF completes the transition from the startup phase operation.

Major Issues

Savannah River Site

- Process safety issues in the In-Tank Precipitation Facility will require resolution prior to resumption pretreatment of one of the waste streams DWPF will vitrify.
- CIF startup has been delayed from FY 1996 to FY 1997 due to equipment problems and changes discovered during the pre trial burn tests conducted in early FY 1996.

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WASTE MANAGEMENT - DEFENSE

III. Performance Summary - Savannah River (cont'd)

Major Issues

Defense Waste Processing Facility

o Ability to ramp-up canister production rates consistent with production experience gained during startup of DWPF in FY 1996.

2325

HEADQUARTERS

I. Mission Supporting Goals and Objectives

Headquarters role is to determine and implement policy. This is done through the establishment of priorities and goals for the program, and then development of baselines to assist in determining progress on a given activity. Subsequently, headquarters assesses the adequacy of progress in order to report to Congress, interested stakeholders, and the public on the status of the waste management program.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Management	$ 43,602	$10,079	$ 4,846	$ -5,233	-52%
TOTAL, Headquarters	$ 43,602	$10,079	$ 4,846	$ -5,233	-52%

III. Performance Summary

FY 1995 Accomplishments

- o Provided Technical programmatic assistance to field for reviews of facility operations, safety analyses, and operational readiness review.
- o Developed and reviewed the first Baseline Environmental Management Report, which provides an assessment of the Department's environmental problems and options to resolve them.
- o Developed mixed waste treatment strategy with the States and EPA in accord with the FFCAct.
- o Performed waste operations analysis and strategic waste type planning.
- o Provided strategic planning and direction, independent evaluation and reviews, safety analysis, and developed systems engineering strategic plan for Hanford waste management operations.
- o Completed Defense Nuclear Facility Safety Board Recommendation 94-2 Implementation Plan.

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WASTE MANAGEMENT - DEFENSE

III. Performance Summary - Headquarters (cont'd)

FY 1996 Accomplishments (To Date and Planned)

- o Will focus on providing expert policy development and analysis, develop accurate data to support strategic planning and macroanalysis.
- o Reduce support to field for the responsibility for facility operational readiness reviews, safety analysis, and other routine operational activities.
- o Continue to work with States and EPA to implement mixed waste treatment strategy.
- o Strategic Waste Type Planning will focus on 10-year planning horizon to ensure progress towards mission completion is made.
- o Will provide limited support to Hanford operations as Headquarters shifts routine activities and oversight to field.
- o Continue support, analysis, and coordination of DNFSB 94-2 Implementation Plan.

FY 1997 Planned Accomplishments

o Provide expert policy development and analysis.	
o Support Strategic Waste Type Planning and macroanalysis.	
o Coordinate and track progress of mission completion on all waste types	$4,846
TOTAL, HEADQUARTERS	$4,846

Explanation of Funding Changes FY 1996 to FY 1997

- o Reduction to Headquarters reflects management decision to focus on strategic, goal-oriented, planning, and shifting many routine operational activities to the field sites.

Major Issues

- o None

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Waste Management - Defense General Plant Project Funding

	1 Site Listing	2 FY 1994 Obligations	3 FY 1995 Estimated Obligations	4 FY 1996 Estimated Obligations	5 FY 1997 Budget Request
A	Albuquerque Operations Office	$ 415	$ 748	$ 0	$ 0
B	Idaho Operations Office	7,477	2,102	5,000	3,500
C	Nevada Operations Office	0	255	1,254	0
D	Oak Ridge Operations Office	5,178	2,184	9,000	2,827
E	Oakland Operations Office	1,065	538	0	500
F	Richland Operations Office	8,400	3,539	6,207	1,976
G	Savannah River Operations Office	1,287	800	6,092	4,976
H	Waste Isolation Pilot Plant	4,349	1,891	3,075	3,874
		$ 28,171	$ 12,057	$ 30,628	$ 17,653

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

WASTE MANAGEMENT - DEFENSE

CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY

Capital Project Summary Listing:

	FY 1995 Comparable	FY 1996 Comparable	FY 1997 Request	$ Change	% Change
Operating and Maintenance					
General Plant Projects	$12,057	$30,628	$17,653	-12,975	-42%
Agreement-in-Principle	0	0	0	0	0%
Capital Equipment	71,627	79,014	49,999	-29,015	-37%
Project Related Costs					
1. CDRs	8,113	12,000	10,000	-2,000	-17%
2. "Bridge" Costs	0	0	0	0	0%

3.A. Construction Project Summary:

Project No.	Project Title	TEC	Previous Obligations	FY 1995 Comparable	FY 1996 Comparable	FY 1997 Request	Remaining Balance
97-D-402	Tank Farm Restoration and Safe Operations, RL	TBD	0	0	0	7,584	TBD
96-D-408	Waste Management Upgrades, Various Locations	29,570	0	0	5,615	11,246	12,709
95-D-402	Install Permanent Electrical Service for the WIPP, AL	5,942	0	700	4,314	752	176

NOTE: The FY 1995 Adjusted column includes use of prior year funds for uncosted.

WASTE MANAGEMENT - DEFENSE - CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY (cont'd)

Capital Project Summary Listing:

3.A. Construction Funded:

Project No.	Project Title	TEC	Previous Obligations	FY 1995 Comparable	FY 1996 Comparable	FY 1997 Request	Remaining Balance
95-D-405	Industrial Landfill V, OR	$ 9,600	$ 0	$ 1,000	$ 4,600	$ 200	$ 3,800
95-D-406	Road 5-01 Reconstruction, Area 5, NV	4,861	0	2,338	1,023	0	1,500
95-D-407	219-S Secondary Containment Upgrade, RL	3,000	0	2,000	1,000	0	0
95-D-408	Phase II Liquid Effluent Treatment and Disposal, RL	26,600	0	7,100	0	0	19,500
94-D-400	High Explosive Wastewater Treatment System, LANL	6,445	1,000	900	4,445	0	100
94-D-402	Liquid Waste Treatment System, NTS	5,688	2,114	3,292	282	0	0
94-D-404	Melton Valley Storage Tank Capacity Increase, ORNL	48,000	8,063	21,373	11,000	6,345	1,219
94-D-406	Low-Level Waste Disposal Facilities, K-25	17,000	6,000	2,400	0	0	8,600
94-D-407	Initial Tank Retrieval Systems, RL	304,300	1,000	3,380	12,000	12,600	275,320
94-D-411	Solid Waste Operation Complex, RL	186,700	12,300	30,879	6,606	0	136,915
94-D-416	Solvent Storage Tanks Installation, SR	3,240	1,500	1,200	0	0	540
93-D-174	Plant Drains Wastewater Treatment Upgrades, Y-12	6,700	5,300	1,400	0	0	0
93-D-181	Radioactive Liquid Waste Line Replacement, RL	17,016	3,116	3,300	5,000	0	5,600
93-D-182	Replacement of Cross Site Transfer System, RL	47,200	7,095	10,310	19,795	8,100	11,200
93-D-183	Multi-Function Waste Remediation Facility, RL	1,215,300	51,710	70,328	0	0	1,093,262

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WASTE MANAGEMENT - DEFENSE - CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY (cont'd)

Capital Project Summary Listing:

3.A. Construction Funded:

Project No.	Project Title	TEC	Previous Obligations	FY 1995 Comparable	FY 1996 Comparable	FY 1997 Request	Remaining Balance
93-D-187	High-Level Waste Removal from Filled Waste Tanks, SR	$ 565,050	$ 197,420	$ 22,675	$ 19,700	$ 20,000	$ 305,255
92-D-171	Mixed Waste Receiving and Storage Facility, LANL	9,640	2,895	0	1,105	0	5,640
92-D-177	Tank 101-AZ Waste Retrieval System, RL	15,800	10,800	5,000	0	0	0
92-D-188	Waste Management ES&H and Compliance Activities, VL	37,553	25,157	2,846	6,197	0	3,353
92-D-403	Tank Upgrades Project, LLNL	18,500	17,488	96	0	0	916
91-D-171	Waste Receiving and Processing Facility, Module I, RL	53,595	49,600	3,995	0	0	0
91-D-172	Aging Waste Transfer Lines, RL	12,500	8,500	0	4,000	0	0
90-D-103	ES&H Improvements, Weapons Research and Development Complex, LANL	12,485	5,744	0	0	0	6,741
90-D-172	Aging Waste Transfer Lines, RL	12,500	6,181	2,819	1,470	0	2,030
90-D-177	RWMC Transuranic Waste Characterization and Storage Facility, ID	127,500	103,072	0	1,428	0	23,000
90-D-178	TSA Retrieval Enclosure, ID	51,200	41,000	7,594	2,606	0	0
89-D-173	Tank Farm Ventilation Upgrade, RL	24,600	23,500	300	800	0	0
89-D-174	Replacement High-Level Waste Evaporator, SR	118,200	81,378	13,000	11,500	11,500	822
88-D-173	Hanford Waste Vitrification Plant, RL	1,210,000	286,335	0	530	0	0
86-D-103	Decontamination and Waste Treatment Facility, SAN	68,005	21,052	4,995	8,885	10,000	23,073
85-D-159	New Waste Transfer Facility, SR	750	0	750	0	0	0
83-D-148	Non-Radioactive Hazardous Waste Management, SR	96,406	89,406	6,000	1,000	0	0
82-D-136	LET&D Processing Facility Upgrade, INEL, ID	57,000	56,000	1,000	0	0	0

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Capital Project Summary Listing:

3.A. Construction Funded:

Project No.	Project Title	TEC	Previous Obligations	FY 1995 Comparable	FY 1996 Comparable	FY 1997 Request	Remaining Balance
81-T-105	Defense Waste Processing Facility, SR	1,276,469	1,231,411	45,058	0	0	0
	Subtotal, Construction Funded	N/A	$2,356,137	$ 278,028	$ 134,901	$ 88,327	$1,941,271
3.B. Operating Expense Funded:							
	Defense Waste Processing Facility, Saltstone Vault #2, SR	$ 12,000	$ 903	$ 0	$ 0	$ 680	$ 10,417
	Mixed Waste Management Facility, LLNL, SF	TBD	11,280	5,656	11,311	2,000	29,453
	Tank 241-C-106 Sluicing, RL	47,212	16,700	20,367	10,033	112	0
	Cap and Roof for Saltstone Vault #1, SR	2,636	0	0	1,636	0	0
	Subtotal, Operating Expense Funded		$ 28,883	$ 26,023	$ 22,980	$ 2,792	$ 39,870
TOTAL, Waste Management - Defense		N/A	$2,385,020	$304,051	$157,881	$ 91,119	$1,981,141
TOTAL NUMBER OF LINE-ITEMS			(32)	(32)	(27)	(13)	(26)

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WASTE MANAGEMENT - DEFENSE
(obligations in thousands)

PROGRAM OBJECT CLASS SUMMARY

Direct Obligation:	FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Personnel Compensation:					
11.1 Full-time permanent	$ 0	$ 55,404	$ 0	$ 72,595	$ 0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	0	0	0	0	0
11.9 Total Personnel Compensation	0	55,404	0	72,595	0
12.1 Civilian personnel benefits	0	12,162	0	15,935	0
13.0 Benefits for former personnel	0	0	0	0	0
21.0 Travel and transportation of persons	0	8,560	0	8,500	0
22.0 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	0	0	0	0	0
23.2 Rental payments to others	0	0	0	0	0
23.3 Communications, utilities, and misc charges	0	0	0	0	0
24.0 Printing and reproduction	0	0	0	0	0
25.4 Operation of GOCOs	1,832,644	2,164,447	1,672,403	2,133,042	1,380,674
25.5 Research and development	0	0	0	0	0
26.0 Supplies and materials	0	0	0	0	0
31.0 Equipment	71,627	85,366	79,014	49,875	49,999
32.0 Land and structures	290,085	294,954	165,529	199,154	105,980
33.0 Investments and loans	0	0	0	0	0
42.0 Insurance claims and indemnities	0	0	0	0	0
Subtotal, Direct Obligations	2,194,356	2,620,893	1,916,946	2,479,101	1,536,653
99.0 Reimbursable Obligations	0	0	0	0	0
99.9 Total Obligations	$2,194,356	$2,620,893	$1,916,946	$2,479,101	$1,536,653

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PROGRAM OBJECT CLASS SUMMARY - WASTE MANAGEMENT - DEFENSE (Cont'd)

Direct Obligation:	FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Recovery of prior year obligations	0	0	0	0	0
Unobligated balance available, start of year	0	0	0	0	0
Unobligated balance available, end of year	0	0	0	0	0
Budget Authority	$2,194,356	$2,620,893	$1,916,946	$2,479,101	$1,536,653

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a/ Includes $3,406,000 in Project 90-D-103, which was appropriated under the Corrective Activities budget.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENTAL MANAGEMENT
PROJECT DATA SHEETS

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Tank Farm Restoration and Safe Operations, Richland, Washington

2a. Project No.: 97-D-402
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1997

3b. A-E Work (Titles I & II) Duration: 90 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 1st Qtr. 1999

4b. Date Construction Ends: 3rd Qtr. FY 2005 a/

6. Current Cost Estimate:
TEC -- 248,480 b/
TPC -- 289,239 b/

7. Financial schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1997	$ 7,584 b/		$ 7,584	$ 7,584

a/ Construction completion date corresponds to the current Tri-Party Agreement Milestone M-43-00, "Complete Tank Farm Upgrades." The actual construction completion date will be determined during conceptual design.

b/ The Total Project Cost and Total Estimated Cost values for the total project are rough order of magnitude based on extrapolations for the affected tank farm facilities developed from the detailed conceptual estimate for 241-AW Tank Farm Upgrades. These TPC and TEC valves will be verified or updated by the total project conceptual design cost estimate to be completed in April 1996.

2336

1. Title and Location of Project: Tank Farm Restoration and Safe Operations, Richland, Washington	2a. Project No.: 97-D-402 2b. Construction Funded

8. Project Description, Justification and Scope

The purpose of this project is to improve reliability of safety-related systems, reduce onsite health and safety hazards, reduce the risk of unmonitored releases to the environment, and support waste retrieval and disposal activities by restoring the existing Tank Farms facilities and systems. Numerous external audits and internal self-assessments of Tank Farms have revealed that the infrastructure requires extensive restoration in order to meet the overall Tank Waste Remediation System (TWRS) mission goals and support safe operation and maintenance activities.

The Tank Farm Restoration and Safe Operations Major System Acquisition (MSA) will provide capital improvements aimed at restoring the 200 Area Tank Farms to an acceptable design basis. The project focuses primarily on improvements needed for the double-shell tank (DST) farms with regard to instrumentation, tank ventilation, and waste transfer systems. The project also provides improvements to the overall Tank Farm infrastructure by providing electrical distribution upgrades for both DST and Single Shell Tank (SST) facilities. This MSA will be integrated with other planned/ongoing upgrades, waste retrieval, and major maintenance activities to ensure that the combined upgrades are performed in a cost-effective manner and that they will adequately support the overall TWRS mission.

The Tank Farm Restoration and Safe Operations MSA will provide major upgrades to Hanford's existing Tank Farm facilities in the following areas.

INSTRUMENTATION - All DST instrumentation systems will be refurbished, focusing on improving the overall safety, reliability, and efficiency of operations. In addition to replacing outdated and failed DST instrumentation, a new automated data collection system will be provided, which will replace the outdated Computer Automated Surveillance System (CASS). These upgrades will result in a significant reduction in the amount of manual readout field instrumentation in the DST farms, thereby improving worker efficiency and reducing worker staytime in the radiation zones (implementing an as low as reasonably achievable {ALARA} principle). No new SST instrumentation is planned to be provided by this project; however, selected existing SST instruments will be connected to the automated data collection system.

TANK VENTILATION - New tank ventilation systems will be provided to replace the existing ventilation systems associated with the following facilities:

- DST farms 241-AN, -AP, -AW, and -SY (primary and annulus system)
- DST farms 241-AY and -AZ (annulus systems only)
- SST farm 241-SX
- Double-contained receiver tank (DCRT) 244-A

2337

8. Project Description, Justification and Scope (continued)

The ventilation upgrades will improve worker safety and reduce the risk of radioactive and/or hazardous material releases to the environment by providing improved confinement and monitoring of tank emissions. New offgas treatment/filtration systems and effluent monitoring systems will be provided to ensure compliance with applicable Federal, State, and local emission standards.

WASTE TRANSFER - New waste transfer systems will be provided to support routine DST operations. New pipe-in-pipe transfer lines, equipped with appropriate leak detection and cathodic protection capabilities, will be constructed, ensuring that the DST waste transfer systems will be fully compliant with RCRA requirements and with Washington State regulations governing hazardous waste handling. (All SST retrieval-related waste transfer upgrades previously included in the scope of this project have been transferred to the TWRS Retrieval Program for implementation (change request documentation is currently being processed)).

ELECTRICAL DISTRIBUTION - The existing piece-meal electrical distribution systems servicing the Tank Farm complex will be consolidated into a single, integrated distribution system capable of supporting Tank Farm operations, as well as providing expansion capability for future loads from TWRS-related activities. The project will remove old, obsolete and/or failing equipment and will provide modern, efficient replacement components. Deteriorating power cabling will be replaced. Existing conditions, which have resulted in potential electrical hazards to personnel, will be corrected and the Tank Farms' electrical distribution system will be brought into compliance with current codes and standards. The electrical distribution system upgrades will begin at the existing utility interface points and will end at the actual loads in each of the Tank Farms. This scope includes replacement of a number of oversized/unused pole- and pad-mounted transformers with new centrally located substations. Maintenance of the system will be improved by the placement of electrical equipment in areas outside the contaminated zones. No new safety class power systems are planned as a part of this project.

Because of their age, many infrastructure systems and components have either exceeded their useful service lives and can be expected to fail in the near-term; have deteriorated beyond repair and must be replaced to ensure continued reliable operation; have already failed; or operate outside current environmental, health, and safety regulations. Due to the age and obsolescence of the existing equipment, it is often difficult to obtain replacement parts for failed or degraded components. These conditions, coupled with the problems associated with performing maintenance work in contaminated areas, have resulted in excessive operation and maintenance costs for the Tank Farm facilities. Deteriorating infrastructure and a poorly defined physical baseline could increase long-term operation and support costs and possibly limit the number of viable alternatives for retrieval, pretreatment and disposal of tank waste.

The FY 1997 appropriation will be used to initiate Title I design, Preliminary Safety Analysis Report development and project management activities.

2338

1. Title and Location of Project: Tank Farm Restoration and Safe Operations, Richland, Washington	2a. Project No.: 97-D-402 2b. Construction Funded

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management costs		$ 7,584 b/
1. Engineering design and inspection at approximately XX percent of construction costs, Item c (Design, Drawings, and Specifications: ($ 0)	$ TBD	
2. Construction Management Costs	TBD	
3. Project management at XX percent of construction costs (item c)	TBD	
b. Land and land rights		0
c. Construction costs		TBD
1. Improvements to land	TBD	
2. Buildings	TBD	
3. Other structures	TBD	
4. Utilities	TBD	
5. Special facilities	TBD	
d. Standard equipment		0
e. Major computer items	0	
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance	0	
Subtotal		$ TBD
h. Contingencies at approximately XX percent of above costs		TBD
i. Total line item cost (section 12, a. 1. (a)		$ TBD
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$248,480

a/ Estimate data is currently available at a rough order of magnitude project cost summary only. The detailed estimate data will be included in the FY 1998 update to the project data sheet, following completion of the conceptual design.

b/ FY 1997 design costs only.

1. Title and Location of Project: Tank Farm Restoration and Safe Operations, Richland, Washington

2a. Project No.: 97-D-402
2b. Construction Funded

10. Method of Performance

The Tank Farm Restoration and Safe Operations MSA will be managed through the integrated management team approach. The U.S. Department of Energy, Richland Operations Office will have responsibility for project management. The integrating contractor responsibilities will be assigned to the Operating Contractor. A consolidated Architect Engineer/Construction Management (AE/CM) contract will be established with an offsite AE/CM team to accomplish definitive design, inspection, and construction management activities. Construction work in contaminated areas will be performed by the onsite engineer/constructor. To the extent feasible, construction in uncontaminated areas and procurement shall be accomplished by fixed-price contracts awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1997	Outyears	TOTAL
a. Total facility costs				
(1) Total facility costs				
(a) Line item (Section 10)	$ 0	$ 7,584	$ TBD	$ TBD
(b) Operating Expense Funded equipment	0	0	TBD	TBD
(c) Inventories	0	0	TBD	TBD
Total facility costs (Federal and Non-Federal)	$ 0	$ 7,584	$ TBD	$248,480
(2) Other project costs				
(a) R&D necessary to complete project	$ 0	$ 0	$ TBD	$ TBD
(b) Conceptual design costs	0	0	TBD	TBD
(c) Decontamination & decommissioning (D&D)	0	0	TBD	TBD
(d) NEPA documentation costs	0	0	TBD	TBD
(e) Other project-related costs	0	7,091	TBD	40,759
Total other project costs a/	$ 0	$ 7,091	$ TBD	$ 40,759
Total project costs	$ 0	$14,675	$ TBD	$289,239
(f) Non-federal contribution	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 0	$14,675	$ TBD	$289,239

a/ Total expense costs for activities through completion of the conceptual design phase (including advanced conceptual design) are as follows: FY 1993 = $846,000; FY 1994 = $6,292,000 (actual); FY 1995 = $7,839,200; FY 1996 = $12,000,000.

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1. Title and Location of Project: Tank Farm Restoration and Safe Operations, Richland, Washington

2a. Project No.: 97-D-402
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--XX years)

(1)	Facility operating costs	$ TBD
(2)	Facility maintenance and repair costs	TBD
(3)	Programmatic operating expenses directly related to the facility	TBD
(4)	Capital equipment not related to construction but related to the programmatic effort in the facility	TBD
(5)	GPP or other construction related to the programmatic effort in the facility	TBD
(6)	Utility costs	TBD
(7)	Other costs	TBD
	Total related annual funding	$ TBD

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

(1) Total facility costs

(a) Line item--These funds will be used for Title I design and project management support.

(b) PE&D--None.

(c) Expense-funded equipment--To be determined during conceptual design.

(d) Inventories--To be determined during conceptual design.

(e) Non-Federal Contribution--None.

(2) Other project costs

(a) R&D necessary to complete construction--None.

(b) Conceptual design--Conceptual design (including advanced conceptual design) will be completed at approximately $12,900,000.

(c) Decontamination & decommissioning (D&D)--To be determined during conceptual design.

(d) NEPA documentation costs--National Environmental Policy Act (NEPA) costs are conservatively estimated based on inclusion of the project in the TWRS-environmental impact statement process.

(e) Other project-related costs--These costs include engineering studies, systems engineering baseline development, project development, safety documentation preparation, regulatory permitting, site characterization and configuration control.

(f) Non-federal contribution--None.

2341

1. Title and Location of Project: Tank Farm Restoration and Safe Operations, Richland, Washington	2a. Project No.: 97-D-402 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated useful life of the project: XX years)
   (1) Facility operating costs--To be determined during conceptual design.
   (2) Facility maintenance and repair costs--To be determined during conceptual design.
   (3) Programmatic operating expenses directly related to the facility--To be determined during conceptual design.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--To be determined during conceptual design.
   (5) GPP or other construction related to the programmatic effort in the facility--To be determined during conceptual design.
   (6) Utility costs--To be determined during conceptual design.
   (7) Other costs--To be determined during conceptual design.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Waste Management Upgrades, Various Locations

2a. Project No.: 96-D-408
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 29 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $42,570
Total Project Cost (TPC) -- $50,413

4a. Date Physical Construction Starts: 4th Qtr. FY 1996

4b. Date Construction Ends: 4th Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $29,570
TPC -- $36,729

7. Financial schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1996	$ 5,615		$ 5,615	$ 4,350
1997	11,246		11,246	8,900
1998	8,200		8,200	9,050
1999	4,509		4,509	7,270

8. Project Description, Justification and Scope

This project line-item is the result of the FY 1996 Appropriation, in which Congress has provided greater flexibility to manage multiple projects of similar nature at various location. The subprojects will be addressed individually in the construction project data sheet, and must undergo the same review process as any other construction line item proposed in this budget. Since these changes occur on a real-time basis and cannot be anticipated, this consolidated line item approach will provide DOE the flexibility to react to significant technical, programmatic and regulatory changes that impact the individual subprojects, making the most effective use of the funds available.

2343

8. Project Description, Justification and Scope (continued)

a. Subproject #01 - Replace Industrial Waste Piping, Kansas City Plant

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEAR	CONSTRUCTION START - COMPLETION DATE
$2,400	$ 0	$ 0	$ 200	$ 2,200	$ 0	4th Qtr. FY 1997 3rd Qtr. FY 1998

This project will replace the overhead industrial waste piping system at the Kansas City Plant (KCP) including dilute acid, caustic, cyanide chrome, and industrial waste lines from the main manufacturing building and five other small buildings to the Industrial Waste Pretreatment Facility (IWPF). The project includes phased demolition and construction to replace the nine separate overhead industrial waste system pipe lines which together convey virtually all process wastes from the operating buildings to the IWPF. All of the pipe lines are located on an outdoor overhead pipe bridge. The new piping will be installed in the same location as the existing piping. Minor modification will be made to the existing bridge to strengthen the pipe anchor points to accommodate thermally induced loads. The total length of piping is approximately 6,700 feet.

FY 1997 funds will be used to perform Title II engineering, project management activities, and construction.

b. Subproject #02 - T-Plant Secondary Containment and Leak Detection Upgrades, Richland

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEAR	CONSTRUCTION START - COMPLETION DATE
$10,700	$ 0	$ 0	$ 2,100	$ 4,029	$ 4,571	3rd Qtr. FY 1997 - 2nd Qtr. FY 1999

The purpose of this project is to upgrade T-Plant facilities in order to perform decontamination activities in support of the Hanford Site's Waste Management and Environmental Restoration Programs.

T-Plant has been recommended for use as the primary interim decontamination facility in support of the Hanford Site's Environmental Restoration Mission and Waste Management Programs. This project will modify T-Plant facilities to comply with State of Washington and U.S. EPA environmental regulations for secondary containment and leak detection and to meet the needs of the facility's mission.

This project will provide a functional on-line facility to support major decontamination activities as required by the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) milestone M-32-03, "Complete T-Plant Tank Actions."

2344

1. Title and Location of Project: Waste Management Upgrades, Various Upgrades	2a. Project No.: 96-D-408 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

The following upgrades will be provided by this project:

- Installation of a liquid waste collection, containment, leak detection, and transfer system for handling decontamination solutions in the 2706-T facility and 2706-TA facility;

The FY 1997 appropriation will be used to complete definitive design, finalize the preliminary safety analysis report (PSAR), initiate construction and procurement, and provide project management support.

c. Subproject #03 - Tank Farm Services Upgrades, Savannah River

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEAR	CONSTRUCTION START - COMPLETION DATE
$16,470	$ 0	$ 0	$ 3,315	$ 5,017	$8,138	4th Qtr. FY 1996 - 4th Qtr. FY 1999

The Tank Farm Services Upgrades project consists of improvements to three different areas of the Tank Farm. These improvements will include service piping upgrades in the H-Area Tank Farm (West Hill), Electrical upgrades in the F-Area Tank Farm, and a cooling system upgrade in the H-Area Tank Farm (East Hill). The upgrades to the service piping are necessary to support the continued and expanding tank farm operation. The cost of repairing leaks in buried pipes has been approximately $4 million over the past four years. Detecting and repairing the leaks is very difficult.

The electrical upgrades in F-Area will consist of the addition or replacement of automatic transfer switches (ATS) and cable which will correct the electrical low-voltage situation in the F-Area Tank Farm. Low voltage situations are causing power interruptions in the F-Area Tank Farm. This project will provide and install a new automatic transfer switch in 241-64F compressor house. The project will replace the overloaded automatic transfer switch in Building 241-74F. The existing normal power supply and load cables in Building 241-74F will be replaced. The standby source and cables will not be changed.

The cooling system upgrade will provide adequate cooling to support In-Tank Precipitation (ITP) and Extended Sludge Processing (ESP) which will feed Saltstone and Defense Waste Processing Facilities (DWPF). Due to changes in the site mission, the cooling requirements for the Tank Farm has changed. The new mission is to remove waste which will generate heat from slurry pump operation and tank transfers. The process facilities will require lower tank temperatures. To provide adequate cooling, a heat exchanger, and a new chromate cooling water pump will be added to the system. The existing cooling pumps will be upgraded.

2345

1. Title and Location of Project: Waste Management Upgrades, Various Upgrades	2a. Project No.: 96-D-408 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

The mechanical services in the H-Area Tank Farm need to be replaced due to damage to the services caused by age. These upgrades are required to support the tank farm operations. This project will replace buried service piping in H-Area with piping in trenches or on pipe racks and provide three new gang valve assemblies with double contained steam supply. The new gang valve assemblies with double contained pipe to Tanks 35 through 37 will reduce the possibilities of back flow in the steam supply lines from occurring again. The assemblies will give better environmental control and implement the ALARA philosophy. The existing lines will be capped and abandoned in place. The gang valve house will be abandoned. The existing gang valve house (GVH) and steam transfer line are not in compliance with DOE Order 5820.2A "Radioactive Waste Management", and poses a threat to the environment and personnel.

FY 1997 funds will be used to continue Title I, Title II design, and procurement of engineered materials. The annual operating expenses for this facility is estimated to be $300,000.

2846

1. Title and Location of Project: Waste Management Upgrades, Various Upgrades

2a. Project No.: 96-D-408
2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management costs		$ 8,686
1. Engineering design and inspection at approximately 33 percent of construction costs, Item c (Design, Drawings, and Specifications:	$ 5,590	
2. Construction Management Costs	1,380	
3. Project management at 11 percent of construction costs (item c)	1,716	
b. Land and land rights		0
c. Construction costs		15,647
1. Improvements to land	20	
2. Buildings	8,915	
3. Other structures (includes demolition)	242	
4. Utilities	1,860	
5. Special facilities	4,610	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 24,333
h. Contingencies at approximately 22 percent of above costs		5,237
i. Total line item cost (section 12, a. 1. (a)		$ 29,570
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$ 29,570

10. Method of Performance

Design and inspection will be performed by negotiated architect/engineer contracts. Construction will be by fixed price contract awarded after competitive proposal.

2347

1. Title and Location of Project: Waste Management Upgrades, Various Upgrades

2a. Project No.: 96-D-408
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 0	$ 0	$ 4,350	$ 8,900	$16,320	$29,570
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 0	$ 0	$ 4,350	$ 8,900	$16,320	$29,570
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	1,666	274	0	0	0	1,940
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	5	0	0	0	0	5
(e) Other project-related costs	526	124	863	1,096	2,605	5,214
Total other project costs	$ 2,197	$ 398	$ 863	$ 1,096	$ 2,605	$ 7,159
Total project costs	$ 2,197	$ 398	$ 5,213	$ 9,996	$18,925	$36,729
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 2,197	$ 398	$ 5,213	$ 9,996	$18,925	$36,729

b. Related annual funding (estimated life of project-- 20-30 years for all subprojects)	
(1) Facility operating costs	$ 2,852
(2) Facility maintenance and repair costs	1,959
(3) Programmatic operating expenses directly related to the facility	3,426
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	450
(5) GPP or other construction related to the programmatic effort in the facility	100
(6) Utility costs	1,290
(7) Other costs	0
Total related annual funding	$10,077

2348

1. Title and Location of Project: Waste Management Upgrades, Various Upgrades	2a. Project No.: 96-D-408 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--Total cost of construction is $29,570,000.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal Contribution--None.

   (2) Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--$1,950,000 has been incurred to develop the conceptual design reports for Subprojects #01 through #03.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--National Environmental Policy Act (NEPA) activities and documentation are expected to cost approximately $5,000 for Richland.
      (e) Other project-related costs--Costs of approximately $5,214,000 for various project support activities, including value engineering session, site evaluation, project and quality assurance plans, design and quality assurance reviews, inventories for startup, readiness reviews, and health physics technician and plant personnel report.
      (f) Non-federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--Costs of approximately $2,852,000 for operations, maintenance, and utilities for the facilities provided by the Subprojects.
   (2) Facility maintenance and repair costs--None.
   (3) Programmatic operating expenses directly related to the facility--Includes T-Plant waste management, operational safety, facility operations, engineering procedures/drawings, waste assessments and rail car transfers.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--Costs of $450,000 for replacement parts.
   (5) GPP or other construction related to the programmatic effort in the facility--None.
   (6) Utility costs--None.
   (7) Other costs--None.

2349

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Install Permanent Electrical Service for the WIPP Waste Isolation Pilot Plant, Carlsbad, New Mexico

2a. Project No.: 95-D-402

2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1995

3b. A-E Work (Titles I & II) Duration: 9 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $5,942
Total Project Cost (TPC) -- $6,209

4a. Date Physical Construction Starts: 1st Qtr. 1997

4b. Date Construction Ends: 2nd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $ 5,942 a/
TPC -- $ 6,196

7. Financial schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1995	$ 700		$ 700	$ 0
1996	4,314		4,314	3,398
1997	752		752	1,575
1998	176		176	969

a/ Cost estimate based on revised baseline estimate from Southwest Public Services (SPS).

2350

1. Title and Location of Project: Install Permanent Electrical Service for the WIPP Waste Isolation Pilot Plant, Carlsbad, New Mexico

2a. Project No.: 95-D-402

2b. Construction Funded

8. Project Description, Justification and Scope

The scope of the project changed due to a project upgrade from the Southwest Public Services (SPS) utility. This new upgrade will provide a technically superior 115 kilovolt (kV) electrical transmission line (south line) and substation as opposed to the previous project (north line) which would provide a 69 kV electrical system.

Project Elements: In addition to the continuance of operating the existing transmission line, this project includes the following main elements.

a. Approximately 19.0 miles of new wood-pole H-frame transmission line routed from Southwest Public Services (SPS) to OCHOA Sand Dunes substations to complete the transmission line loop to WIPP. As is the case with the existing line, the new line will be owned and operated by SPS.
b. A new 115/13.8 kV substation whose main elements include two Load Tap Change (LTC) power transformers each supplied with grounding resistors; 115 kV sulfur hexafluoride power circuit breakers; disconnect switches and buswork including 115 kV level insulators and steel support structures; protective relaying, instrumentation, control and auxiliary power equipment; 13.8 kV vacuum circuit breaker switchgear; a control building; and a perimeter security fence.
c. The addition of a 115 kV breaker terminal position and modification of protective relaying at SPS's Whitten Interchange.
d. Dual 13.8 kV cable circuits installed in underground utility corridor between the new SPS WIPP Substation and the existing 13.8 kV Plant Substation switchgear. Additionally, grounding, instrumentation, control and alarm cables between both substations will be installed. All such cabling will be owned by the Department of Energy and operated and maintained by the Management and Operations contractor.
e. Demolition of the existing 69/13.8 kV construction phase utility substation. Demolition will be under SPS responsibility.
f. Either access to the 13.8 kV vacuum circuit breakers equipment by authorized WIPP personnel or access to load interrupter switches and control of 13.8kV vacuum circuit breakers.
g. Installation of equipment to remotely monitor SPS's utility meter.

SPS's existing substation for the WIPP is supplied by one transmission line (single-fed). This substation was originally intended to be a temporary facility to support the Site Preliminary Design and Validation (SPDV) and construction phase of the WIPP project. Its replacement is necessary to meet WIPP's future power requirements such as providing sufficient electrical power, increasing electrical power reliability, improving quality of electrical power, and enhancing electrical safety. Attainment of these goals will assure the continuation of commercial electrical power should a single component fail.

2351

8. Project Description, Justification and Scope (continued)

Even though WIPP's aging temporary substation is considered adequate during WIPP's non-operational phases, it will prove inadequate during the operation phase, when higher loading is encountered and increased reliability is expected. For increased levels of reliability the existing temporary substation needs to be replaced and an additional transmission line installed. The original equipment was not designed for, nor does it supply the same level of reliability, associated operational-flexibility, or redundancy offered by the design for the permanent substation and new transmission line.

A reliable, redundant and flexible system would prevent outages at the WIPP due to a single-event, forced or maintenance-related outage. A single event due to equipment failure on either the existing transmission line or substation would shut the WIPP site down, the underground facilities would be evacuated, and only the equipment required to monitor the safe disposal of the waste would remain operable on site. A single event forced outage could be either momentary or for a long duration. According to SPS, sustained outages of 48 hours or more are possible for failure and emergency replacement of a "standby" substation transformer. Replacement of the transformer with other than an emergency replacement could take much longer. Likewise, loss of the transmission line could require or even exceed five days for repairs depending on the extent of damage.

Without completion of this project, controlled maintenance or construction outages for SPS utility equipment would also shut the WIPP site down. Periodically transmission lines and various equipment on the SPS system will need maintenance that may require such an outage. While less disruptive, even planned outages will have the same effects as an equipment failure.

Voltage sags and surges are a relatively common occurrence on utility power lines. The magnitude and effects of these sags and surges are normally greater on a single feed (radial) transmission system. A multiple feed (looped) transmission system will tend to absorb the sags and surges into the system and reduce the effect on the customer. Mine Safety and Health Administration (MSHA) requirements for under-voltage protection underground causes voltage sage to disconnect WIPP's underground electrical system. These MSHA requirements contribute to an increased likelihood for unnecessary loss of power to WIPP's underground due to voltage sags.

2352

1. Title and Location of Project: Install Permanent Electrical Service for the WIPP Waste Isolation Pilot Plant, Carlsbad, New Mexico	2a. Project No.: 95-D-402 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

Installation of an additional transmission line and a ring bus will help to alleviate the problem of these voltage excursions. With both lines connected, the additional line will act in such a manner to smooth out or damper either a voltage surge or a sag.

In its present configuration, the existing SPS utility substation requires 69,000 volt overhead transmission lines to cross over WIPP's perimeter security fence and over an area with both pedestrian and equipment traffic. This presents a potential safety hazard. While administrative controls in-place prevent certain equipment, such as WIPP's crane, from operating under the incoming transmission line, occasionally, heavy equipment is required to be used near or even under the transmission line.

Upon completion of this project the overhead transmission lines will be removed thereby eliminating an administratively controlled safety hazard.

2353

1. Title and Location of Project: Install Permanent Electrical Service for the WIPP Waste Isolation Pilot Plant, Carlsbad, New Mexico

2a. Project No.: 95-D-402

2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management costs		$ 895
1. Engineering design and inspection at approximately 18 percent of construction costs, Item c	$ 735	
2. Construction Management Costs	87	
3. Project management at 2 percent of construction costs (item c)	73	
b. Land and land rights		36
c. Construction costs		4,125
1. Improvements to land	0	
2. Buildings	0	
3. Other structures	0	
4. Utilities	4,125	
5. Special facilities	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		(97)
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 4,959
h. Contingencies at approximately 18 percent of above costs		906
New Mexico Gross Tax at 6.1 percent		77
i. Total line item cost (section 12, a. 1. (a)		$ 5,942
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC) b/		$ 5,942

a/ Contingency at 15% due to uncertainty in SPS supplied figures, final transmission line routing, and fluctuation in cost of raw materials.
b/ Cost reflects change due to escalation, new baseline costs from SPS, and removal of the M&O contractor fee.

1. Title and Location of Project: Install Permanent Electrical Service for the WIPP Waste Isolation Pilot Plant, Carlsbad, New Mexico	2a. Project No.: 95-D-402 2b. Construction Funded

10. Method of Performance

The Management and Operating Contractor (MOC) will prepare conceptual design, design criteria, review and furnish comments to the DOE on all Title I,II and III engineering documents prepared by Southwest Public Service (SPS). SPS will provide the construction management for the project. During construction, utility tie-in to existing facilities and performance of final acceptance testing will be performed by SPS personnel.

SPS will provide the Title I and II design engineering. SPS will provide Title III inspection for this project which includes providing oversight surveillance and reporting as outlined in the Project Execution Plan. MOC will be used on an as-needed basis for evaluation and approval for the critical equipment installation and startup of Title III. Engineering is to include studies, preparation of design, drawings, specifications, cost estimates, and contractor support.

SPS will provide all construction, procurement, erection, startup and testing of the facilities proposed by this conceptual design. Oversight surveillance, and technical evaluation of specified equipment, installation, startup and testing procedures will be provided by the MOC and approved by the DOE.

2355

1. Title and Location of Project: Install Permanent Electrical Service for the WIPP Waste Isolation Pilot Plant, Carlsbad, New Mexico

2a. Project No.: 95-D-402

2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 0	$ 0	$ 3,398	$ 1,575	$ 969	$ 5,942
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 0	$ 0	$ 3,398	$ 1,575	$ 969	$ 5,942
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	93	0	0	0	0	93
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project-related costs	$ 24	$ 115	$ 2	$ 9	$ 11	$ 161
Total other project costs	$ 117	$ 115	$ 2	$ 9	$ 11	$ 254
Total project costs	$ 117	$ 115	$ 3,400	$ 1,584	$ 980	$ 6,196
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 117	$ 115	$ 3,400	$ 1,584	$ 980	$ 6,196

b. Related annual funding (estimated life of project--25 years)	
(1) Facility operating costs	$ 1
(2) Facility maintenance and repair costs	6
(3) Programmatic operating expenses directly related to the facility	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs	0
(7) Other costs	0
Total related annual funding	$ 7

2356

1. Title and Location of Project: Install Permanent Electrical Service for the WIPP Waste Isolation Pilot Plant, Carlsbad, New Mexico

2a. Project No.: 95-D-402

2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--The total estimated cost is $5,942,000 which includes all design and construction.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal contribution--None.

   (2) Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--Conceptual design including the Design Criteria will be completed at a cost of $93,800.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--None.
      (e) Other project related costs--$160,600: Other costs include items needed to complete construction.
      (f) Non-Federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--$1,000 annually.
   (2) Facility maintenance and repair costs--$6,000 annually.
   (3) Programmatic operating expenses directly related to the facility--None.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--None.
   (5) GPP or other construction related to programmatic effort--None.
   (6) Utility costs--None.
   (7) Other costs--None.

2857

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Industrial Landfill V and Construction/Demolition Landfill VII, Phase II, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee

2a. Project No.: 95-D-405

2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1995

3b. A-E Work (Titles I & II) Duration: 9 months

4a. Date Physical Construction Starts: 3rd Qtr. 1996

4b. Date Construction Ends: 2nd Qtr. FY 1999

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $9,600
Total Project Cost (TPC) -- $9,850

6. Current Cost Estimate:
TEC -- $ 9,600
TPC -- $10,606

7. Financial schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1995	$ 1,000		$ 1,000	$ 526
1996	4,600		4,600	3,819
1997	200		200	291
1998	3,800		3,800	3,259
1999	0		0	1,705

8. Project Description, Justification and Scope

Solid waste disposal activities for DOE's Oak Ridge facilities must comply with existing Federal and State regulations. The construction of Areas II and III of Industrial Landfill-V (ILF-V) and the proposed improvements to Construction/Demolition Landfill-VII (C/DL-VII) are required to meet the solid waste disposal requirements of the DOE's Oak Ridge Reservation through the year 2010. The timely development of Area II of ILF-V is mandatory for uninterrupted operations of the Y-12 and K-25 Plants as well as that of the Oak Ridge National Laboratory (ORNL). Based upon current projections of waste generation, Area II must be operational by late fall of 1996 to prevent disruption of operations at all of the Oak Ridge facilities.

2358

1. Title and Location of Project: Industrial Landfill V and Construction/Demolition Landfill VII, Phase II, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee	2a. Project No.: 95-D-405 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

This project will provide the engineering design, permitting, and construction for the development of Phases II and III of industrial landfill V (ILF-V) and site enhancements to the construction/demolition landfill VII (C/DL-VII). Both of these landfills are located within the boundaries of the Department of Energy's (DOE's) Oak Ridge Reservation located in Oak Ridge, Tennessee. The initial phases of the landfills and all landfill support facilities were previously constructed as part of the Steam Plant Ash Disposal (SPAD) project (90-D-125). The 1990 project provides the infrastructure and initial operating areas for both landfills. This infrastructure includes access roads to the site, site utilities, and a facilities support building. The efforts proposed under this project will expand ILF-V and render C/DL-VII in a state of "readiness" for future development when required.

The project scope for ILF-V includes the development of Areas II and III, which encompass approximately five acres each. Area II has an estimated volume of approximately 225,000 cubic yards with a projected life of approximately 4.3 years, and Area III has an estimated volume of approximately 470,000 cubic yards and a projected life of 9 years. The ILF-V scope also provides for clearing, grubbing, minimal grading, and revegetating the site. Based upon the promulgation of RCRA Subtitle D requirements into the Tennessee Department of Environment and Conservation (TDEC) solid waste rules, composite liners for the bottom of the landfill will be required for the Areas II and III of ILF-V. Leachate collection and gas migration control systems will be provided. The design will include provisions to facilitate closure of landfill areas as they reach capacity; however, the costs of these closures will be funded at a later date and therefore are not included in the cost estimate for this project.

The project scope for C/DL-VII provides "capital" improvements to the site, including construction of a second sedimentation pond, completion of the landfill perimeter road, and clearing, grubbing, minimal grading, and revegetating the remainder of the site.

The phased development of ILF-V and the enhancements to the C/DL-VII are required to meet the future industrial wastes disposal requirements of DOE Oak Ridge Operations and to comply with the Resource Conservation and Recovery Act (RCRA), Subtitle D requirements that have been promulgated into the Tennessee Department of Environment and Conservation solid waste rules. The waste to be disposed at these sites is industrial waste or construction/demolition debris.

2359

1. Title and Location of Project: Industrial Landfill V and Construction/Demolition Landfill VII, Phase II, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee

2a. Project No.: 95-D-405

2b. Construction Funded

8. Project Description, Justification and Scope (continued)

The generation of solid industrial wastes at Oak Ridge will continue as long as the plants operate. Additionally, refuse generation will continue through the remedial action and decommissioning and decontamination activities. Land-based disposal remains the best approach to solid waste management for the near future. This project has been planned with the most technically and economically acceptable waste management practices in mind. These technologies will meet the current and anticipated regulatory requirements. As with many projects that are borne out of environmental compliance issues, a significant area of uncertainty is future environmental regulations. The EPA has recently promulgated regulations that present a major impact on the design and cost of operation of sanitary landfills. The objective of this project is to provide a landfill that complies with the new federal regulations and the applicable state regulations and minimizes the costs of implementation.

The FY 1997 obligations will fund construction management and project management activities.

2360

1. Title and Location of Project: Industrial Landfill V and Construction/Demolition Landfill VII, Phase II, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee	2a. Project No.: 95-D-405 2b. Construction Funded

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management costs		$ 2,200
1. Engineering design and inspection at approximately 18 percent of construction costs, Item c (Design, Drawings, and Specifications: $ 105,000)	$ 1,000	
2. Construction Management Costs	600	
3. Project management at 11 percent of construction costs (item c)	600	
b. Land and land rights		0
c. Construction costs		5,600
1. Improvements to land	5,600	
2. Buildings	0	
3. Other structures	0	
4. Utilities	0	
5. Special facilities	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		100
Subtotal		$ 7,900
h. Contingencies at approximately 21 percent of above costs		1,700
i. Total line item cost (section 12, a. 1. (a)		$ 9,600
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$ 9,600

a/ The cost estimate is based on a conceptual design completed in April 1993, at a cost of $118,000. The DOE Headquarters Economic Escalation Indices for Construction Projects were used as appropriate over the project cycle.

1. Title and Location of Project: Industrial Landfill V and Construction/Demolition Landfill VII, Phase II, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee	2a. Project No.: 95-D-405
	2b. Construction Funded

10. Method of performance

DOE-ORO will provide overall project management.

The facilities manager will provide project specific design criteria, construction support services (including design and project liaison, project management and construction support), and Title III field engineering services. To the extent feasible, engineering will be performed under a negotiated architect-engineer contract. The onsite construction manager will award and administer all construction contracts. Construction work will be accomplished by fixed-price subcontract(s) awarded on the basis of competitive bids.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 0	$ 526	$ 3,819	$ 291	$ 4,964	$ 9,600
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 0	$ 526	$ 3,819	$ 291	$ 4,964	$ 9,600
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	118	0	0	0	0	118
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project-related costs	71	112	125	150	$ 430	$ 888
Total other project costs	$ 71	$ 112	$ 125	$ 150	$ 430	$ 1,006
Total project costs	$ 189	$ 638	$ 3,944	$ 441	$ 5,394	$ 10,606
(f) Non-federal contribution	0	$ 0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 189	$ 638	$ 3,944	$ 441	$ 5,394	$ 10,606

2962

1. Title and Location of Project: Industrial Landfill V and Construction/Demolition Landfill VII, Phase II, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee

2a. Project No.: 95-D-405

2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--13 years) a/

(1) Facility operating costs	$ 3,000
(2) Facility maintenance and repair costs	300
(3) Programmatic operating expenses directly related to the facility	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	250
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs b/	25
(7) Other costs	0
Total related annual funding	$ 3,575

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

(1) Total facility costs

(a) Line item--Construction line item costs for the engineering, design, and construction are estimated to be $9,600,000.

(b) PE&D--None.

(c) Expense-funded equipment--None.

(d) Inventories--None.

(e) Non-Federal contribution--None.

a/ Annual funding estimates are preliminary and generally based on past operating experience of a similar facility.

b/ Utility costs are based on rough estimates. Equipment usage and related service costs will be further evaluated and subsequently updated.

2363

1. Title and Location of Project: Industrial Landfill V and Construction/Demolition Landfill VII, Phase II, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee	2a. Project No.: 95-D-405 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

(2) Other project costs
- (a) R&D necessary to complete construction-- None.
- (b) Conceptual design--The conceptual design was completed in April 1993 at a cost of $118,000.
- (c) Decontamination & decommissioning (D&D)--None.
- (d) NEPA documentation costs--No NEPA documentation costs are associated with this project. An Environmental Assessment (EA) was prepared at part of the SPAD project and a Finding of No Significant Impact (FONSI) was issued covering the entire landfill development site.
- (e) Other project related costs--Other project related costs include preparation of project-specific design criteria and facility engineer support.

(f) Non-Federal contribution--None.

b. Related annual funding
- (1) Facility operating costs--Include materials and labor to staff and operate ILF-V (including leachate collection system), leachate holding tank facility, C/DL-VII, and the landfill facilities building. The scope of this project does not replace any other facility, but adds additional capacity to existing facilities.
- (2) Facility maintenance and repair costs--Include non-construction maintenance effort and repair including maintenance of landfill facilities building, landfill equipment, leachate collection system, leachate holding tank facility, sedimentation ponds, perimeter roads, and surrounding area. Stormwater and erosion control are areas that require extensive on-going maintenance.
- (3) Programmatic operating expenses directly related to the facility--None.
- (4) Capital equipment not related to construction but related to the programmatic effort in the facility--Capital equipment needs not related to construction but related to the programmatic effort include periodic replacement of landfill operations equipment including motorized bulldozer/compactor to perform compaction and cover application, motorized scraper for providing and spreading cover material, motorized in-loader for use as back-up to compactor. Other support vehicles requiring replacement include grader, dump trucks, backhoe, vibratory roller and bulldozer.
- (5) GPP or other construction related to programmatic effort--None.
- (6) Utility costs--Annual utility costs include power, potable water, and sanitary water.
- (7) Other costs--None.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Melton Valley Storage Tanks Capacity Increase, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No.: 94-D-404
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Quarter FY 1994

3b. A-E Work (Titles I and II) Duration: 15 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $48,000
Total Project Cost (TPC) -- $52,400

4a. Date Physical Construction Starts: 4th Quarter FY 1994

4b. Date Construction Ends: 4th Quarter FY 1998

6. Current Cost Estimate:
TEC -- $48,000 a/
TPC -- $52,810 a/

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1994	$ 9,400	- 118 b/	$ 8,063	$ 2,383
1995	22,592	- 1,219 c/	22,592	6,051
1996	11,000		11,000	21,000
1997	6,345		6,345	16,000
1998	0		0	2,566

a/ Baseline Change Proposal in process for Headquarter's approval.
b/ Congressionally mandated rescission of $118,000.
c/ Reduction of $1,219,000 of prior year funds for Productivity Savings.

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1. Title and Location of Project: Melton Valley Storage Tanks Capacity Increase, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No.: 94-D-404
2b. Construction Funded

8. Project Description, Justification and Scope

Presently, the MVST facility is filled to near capacity with liquid low-level waste which contains transuranic (TRU) waste. The existing MVSTs were built in 1980 to support ORNL's hydrofracture operations for disposal of Liquid Low-Level Waste (LLLW). Since the shutdown of the hydrofracture operations, ORNL has had no way to dispose of the LLLW generated. For the near-term, the LLLW supernate containing non-TRU constituents has been drawn from the tanks and solidified for on-site storage thus leaving large volumes of precipitate remaining inside the tanks. However, the on-site storage is limited and can be used only until permanent disposal is available.

Since a method does not exist for disposing of the LLLW generated at ORNL, the capacity of the MVST must be increased in order to continue operations. Additionally, the Federal Facility Agreement (FFA), which requires the transfer of waste from leaking, inactive, and substandard LLLW tanks, was recently signed by the Department of Energy (DOE), Tennessee Department of Environment and Conservation (TDEC), and the Environmental Protection Agency (EPA), increasing the need for additional storage capacity. New nominal storage capacity of 600,000 gallons is needed by 1998 in order to accommodate transfers required by the FFA, continue ongoing ORNL operations, and provide a safety margin for upsets and emergencies. Planned installation is in a modular format due to timing and funding constraints. The expansion is to be a storage facility and not a processing center. Capabilities for sampling of the waste will be provided.

The planned expansion will add six tanks, each with a maximum capacity of 100,000 gallons. One tank (100,000 gallons) will be kept empty as free reserve. The remaining five tanks will only be filled to 90 percent capacity, yielding a working capacity for the project of 450,000 gallons. The additional 600,000 gallons of capacity will provide for 170,000 gallons to be transferred from inactive, and substandard tanks; 150,000 gallons transferred from the Evaporator Facility; 130,000 gallons for future ORNL operations; 50,000 gallons of in-tank freeboard; and 100,000 gallons of reserve capacity. The new facility will be located in Melton Valley and will have the capability to transfer and receive liquids and readily pumpable sludges to and from the existing MVST Facility.

The following facilities will be provided:

a. Lined tank vaults containing six 100,000-gallon Liquid Low-Level Waste (LLLW) storage tanks. Each tank will provide a 10 percent free board space, leaving a useable capacity of 90,000 gallons each.
b. A lined vault adjacent to the tank vaults which provides confinement for the associated process pumps and valves.
c. A High Efficiency Particulate Air (HEPA) filtered ventilation system which maintains the tanks and vaults under negative pressure and prevents the buildup of combustible gases.
d. A buried and lined valve pit which connects the Melton Valley Storage Tanks-Capacity Increase Project (MVST-CIP) to the existing MVST facility and the LLLW Evaporator in Bethel Valley.

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1. Title and Location of Project: Melton Valley Storage Tanks Capacity Increase, Oak Ridge National Laboratory, Oak Ridge, Tennessee	2a. Project No.: 94-D-404 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

e. A truck unloading facility consisting of a diked concrete pad and piping connections capable of receiving chemicals from trucks and pumping liquid process waste into a process waste tanker.
f. A control and equipment room which houses support equipment required to operate the above facilities.

The funding for FY 1997 will be used to complete procurement and to complete funding of construction.

1. Title and Location of Project: Melton Valley Storage Tanks Capacity Increase, Oak Ridge National Laboratory, Oak Ridge, Tennessee

2a. Project No.: 94-D-404
2b. Construction Funded

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management costs		$ 10,211
1. Engineering design and inspection at approximately 24 percent of construction costs, Item c (Design, Drawings, and Specifications: $2,200,000)	$ 6,654	
2. Construction Management Costs	1,831	
3. Project management at 6 percent of construction costs (item c)	1,726	
b. Land and land rights		0
c. Construction costs b/		27,802
1. Improvements to land	1,223	
2. Buildings	5,560	
3. Other structures	0	
4. Utilities	1,140	
5. Special facilities	19,879	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		800
Subtotal		$38,813
h. Contingencies at approximately 24 percent of above costs		9,187
i. Total line item cost (section 12, a. 1. (a)		$48,000
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$48,000

a/ The cost estimate is based on conceptual design completed in April 1992 at a cost of $990,000. The DOE Headquarters Economic Escalation Indices for Construction Projects were used as appropriate over the project cycle.

b/ Construction costs include $200,000 for readiness reviews.

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10. Method of Performance

DOE-ORO will provide overall project management.

Design will be performed under a negotiated architect-engineer contract and inspection will be performed by the operating contractor or the architect-engineer at DOE's option. Design, procurement, inspection and checkout of the special facilities will be by the operating contractor. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding administered by the construction manager.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 2,383	$ 6,051	$21,000	$16,000	$ 2,566	$ 48,000
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 2,383	$ 6,051	$21,000	$16,000	$ 2,566	$ 48,000
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	990	0	0	0	0	990
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	100	0	0	0	0	100
(e) Other project-related costs	2,410	200	460	450	200	3,720
Total other project costs	$ 3,500	$ 200	$ 460	$ 450	$ 200	$ 4,810
Total project costs	$ 5,883	$ 6,251	$21,460	$16,450	$ 2,766	$ 52,810
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 5,883	$ 6,251	$21,460	$16,450	$ 2,766	$ 52,810

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11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--30 years)	$ 150
(1) Facility operating costs	100
(2) Facility maintenance and repair costs	100
(3) Programmatic operating expenses directly related to the facility	100
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	200
(5) GPP or other construction related to the programmatic effort in the facility	50
(6) Utility costs	100
(7) Other costs	$ 800
Total related annual funding	

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--Construction line item costs for design, procurement, and construction of the Melton Valley Storage Tank Capacity Increase Project are estimated to be $48,000,000. This includes $200,000 for readiness reviews.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal contribution--None.
   (2) Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--The conceptual design was completed in April 1992 at a cost of $990,000. This included preparation of a Project Safety Assessment.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--Costs for NEPA documentation and activities are estimated to be $100,000.
      (e) Other project related costs--A total of $30,000 is included for site characterization activities. The Design Criteria was to be completed in September 1993, at an estimated cost of $540,000. Value engineering studies are estimated at $150,000. Other estimated costs of $3,000,000 include activities associated with requirements definition, project validation, readiness reviews, Project Management Plan, Quality Assurance planning and other miscellaneous supporting project documents.
      (f) Non-federal contribution--None.

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12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding

(1) Facility operating costs--The annual estimated costs of $150,000 to operate the MVST-CI include personnel, operational sampling and analysis, health physics and industrial hygiene, and quality inspection.

(2) Facility maintenance and repair costs--$100,000 for maintaining the facility and making necessary repairs as required.

(3) Programmatic operating expenses directly related to the facility--The additional annual programmatic expenses of $100,000 includes the cost of personnel needed for performance tracking and reporting, and budgeting.

(4) Capital equipment not related to construction but related to the programmatic effort in the facility--Capital equipment in support of the MVST-CI is estimated to cost approximately $100,000 for replacement equipment and upgrades necessary to meet changing environmental, industrial safety, and health and safety requirements.

(5) GPP or other construction related to programmatic effort--Funding of $200,000 is required for GPP or other construction needed in routine facility operations and in order to keep up with changing requirements.

(6) Utility costs--$50,000 provided for cost of utilities.

(7) Other costs--Funding of $100,000 is for miscellaneous costs which are not covered above.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Initial Tank Retrieval Systems, Richland, Washington

2a. Project No.: 94-D-407
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 4th Qtr. FY 1994

3b. A-E Work (Titles I & II) Duration: 159 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $315,100
Total Project Cost (TPC) -- $375,200

4a. Date Physical Construction Starts: 4th Qtr. FY 1996

4b. Date Construction Ends: 2nd Qtr. FY 2010

6. Current Cost Estimate:
TEC -- $304,300 a/
TPC -- $358,200 a/

7. Financial schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1994	$ 7,000	- 6,000 b/	$ 1,000	$ 509
1995	17,700	- 14,320 b/	4,380	3,151
1996	12,000	- 6,400 c/	5,600	6,320
1997	12,600		12,600	10,400
1998	13,600		13,600	15,000
1999	20,960		20,960	10,800
2000	20,760		20,760	10,600
2001	29,000		29,000	28,140
2002	26,700		26,700	26,700
2003	31,700		31,700	31,200
2004	37,100		37,100	37,000
2005	33,700		33,700	33,800
2006	24,900		24,900	24,340
2007	24,100		24,100	25,360
2008	19,200		18,200	19,440
2009	0		0	14,880
2010	0		0	6,660

1. Title and Location of Project: Initial Tank Retrieval Systems, Richland, Washington	2a. Project No.: 94-D-407 2b. Construction Funded

7. Financial schedule (Federal Funds) (continued)

a/ Current total estimated costs, total project cost, and financial schedule are based on the Title I design for Tank 241-SY-101 and the conceptual design report for the other nine tanks.
b/ Reduction of $9,020,000 of FY 1995 current year funds for Productivity Savings, use of $6,000,000 of prior year funds for uncosted offset; reduction of $5,300,000 current year funds due to defense rescission.
c/ Reduction of $6,400,000 current year funds to meet uncosted offset for FY 1996.

8. Project Description, Justification and Scope

The Initial Tank Retrieval Systems (ITRS) project provides mixing and pumping systems for retrieval of radioactive wastes from ten of Hanford's 28 double-shell tanks (DST). The contents of these tanks consist of supernatant liquids and settled solids which must be mixed prior to transferring the waste to alternative storage or treatment facilities. The typical retrieval system consists of high horsepower electrically powered mixer pumps and associated control systems to mobilize solids in the tank. A new substation and underground duct banks will be provided for all but the AY/AZ complex. Internal tank components, such as thermocouple trees and dry wells, will be replaced with higher strength equipment to withstand the forces induced by the mixer pumps. Monitoring and control systems will be installed to measure performance of the mixer pumps and tank operation. Remote decontamination equipment and disposable containment equipment will be utilized for removal and disposal of tank and retrieval components. Dilution transfer systems will be installed for removal of the tank contents, and equipment will be provided as required to remove excess heat generated by the mixer pumps.

A preliminary tank retrieval sequence was developed in April 1992. It identified the tanks requiring retrieval to meet the immediate goals of resolving tank safety issues, supporting treatment operations, and managing tank space to accomplish this work. This retrieval sequence has been modified to reflect current Tank Waste Remediation System (TWRS) program needs, and now includes the following ten DSTs: 241-SY-101, 241-SY-103, 241-AN-103, 241-AN-104, 241-AN-105, 241-AN-106, 241-AP-101, 241-AW-101, 241-AY-102, and 241-AZ-102. The waste retrieval systems for these tanks will be provided by this project in three packages. The first package started design in FY 1994, and consists of tanks 241-SY-101, 241-AW-101, and 241-SY-103. Design of remaining tank waste retrieval systems will be pursued in packages starting design in FY 1999 and FY 2003.

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1. Title and Location of Project: Initial Tank Retrieval Systems, Richland, Washington	2a. Project No.: 94-D-407 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

The ITRS will provide the capability required to remove the settled solids component of the waste for feed to future treatment plants. Existing equipment installed in the DSTs only allows the removal and transfer of supernatant liquids, and is incapable of suspending and removing the settled solids. A by-product of the retrieval function is the interim ability to consolidate tank waste by transferring the solids of one tank into another tank containing compatible waste. The additional DST storage space is required to allow safe storage of alternate waste streams, such as waste from the single-shell tanks. Additionally, the dilution and waste removal capabilities provided by ITRS will provide passive mitigation to waste that generates and retains flammable gas currently stored in six watchlist DSTs. The highest priority watchlist tank, 241-SY-101, is presently being mitigated by the operation of a mixer pump. Dilution of this waste will change the flammable gas retention capabilities such that it will no longer release gases at flammable concentrations. Once diluted, mitigation of the tank will no longer depend on continued operation of a mixer pump.

The FY 1997 appropriation will be used for procurement of long-lead equipment and half of the construction effort on the waste retrieval system.

2374

1. Title and Location of Project: Initial Tank Retrieval Systems, Richland, Washington

2a. Project No.: 94-D-407
2b. Construction Funded

9. Details of Cost Estimate a/b/

	Item Cost	Total Cost
a. Design and Management costs		$ 81,940
1. Engineering design and inspection at approximately 39 percent of construction costs, Item c (Design, Drawings, and Specifications: $ 36,950)	$ 61,770	
2. Construction Management Costs	9,460	
3. Project management at 7 percent of construction costs (item c)	10,710	
b. Land and land rights		0
c. Construction costs		157,050
1. Improvements to land	360	
2. Buildings	1,400	
3. Other structures	17,510	
4. Utilities	8,730	
5. Special facilities	129,050	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		4,110
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$243,100
h. Contingencies at approximately 25 percent of above costs		61,200
i. Total line item cost (section 12, a. 1. (a)		$304,300
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$304,300

a/ Estimate is based on the Title I design for Tank 241-SY-101 and the conceptual design report for the other nine tanks.

b/ Tank 241-SY-101 costs include escalation based on the DOE-HW escalation study for 1995. Costs for the other nine tanks include escalation based on the Material and Labor Escalation Study, prepared by ICF Kaiser Hanford company, dated February 1994. Engineering: FY 1994 (3.8%); FY 1995 (4.2%); FY 1996 (4.2%); FY 1997 (4.5%); FY 1998 (4.5%); FY 1999 (4.9%); FY 2000 (4.5%); FY 2001 (4.4%); construction: FY 1994 (2.9%); FY 1995 (3.4%); FY 1996 (3.4%); FY 1997 (3.4%); FY 1998 (3.7%); FY 1999 (3.5%); FY 2000 (3.4%); FY 2001 (3.1%).

10. Method of Performance

The Initial Tank Retrieval Systems will be managed through the integrated management team approach. The U.S. Department of Energy, Richland Field Office will have responsibility for project management. The integrating contractor responsibilities will be assigned to the operating contractor. The research and development contractor will provide technical support. Design and inspection shall be performed by the onsite architect-engineer. To the extent feasible, construction and procurement shall be accomplished by fixed-price contract awarded on the basis of competitive bidding. Construction management will be performed by the onsite engineer-constructor.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 509	$ 3,151	$ 6,320	$10,400	$283,920	$304,300
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 509	$ 3,151	$ 6,320	$10,400	$283,920	$304,300
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 310	$ 490	$ 0	$ 0	$ 800
(b) Conceptual design costs	1,700	0	0	0	0	1,700
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	10	0	0	0	0	10
(e) Other project-related costs	2,326	290	1,190	600	46,984	51,390
Total other project costs	$ 4,036	$ 600	$ 1,680	$ 600	$ 46,984	$ 53,900
Total project costs	$ 4,545	$ 3,751	$ 8,000	$11,000	$330,904	$358,200
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 4,545	$ 3,751	$ 8,000	$11,000	$330,904	$358,200

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1. Title and Location of Project: Initial Tank Retrieval Systems, Richland, Washington	2a. Project No.: 94-D-407 2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--30 years)

(1) Facility operating costs	$ 250
(2) Facility maintenance and repair costs	50
(3) Programmatic operating expenses directly related to the facility	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs	0
(7) Other costs	0
Total related annual funding	$ 300

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1. Title and Location of Project: Initial Tank Retrieval Systems, Richland, Washington	2a. Project No.: 94-D-407 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--These funds will be used for design, procurement, construction, and project management.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal contribution--None.

   (2) Other project costs
      (a) R&D necessary to complete construction--Supporting technology work of $800,000 includes a test loop for validation of waste transfer instrumentation.
      (b) Conceptual design--Conceptual design completed at a cost of $1,700,000.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--The W-211 NEPA documentation of $10,000 is integrated into the Hanford Defense Waste EIS, SIS-EIS, and TWRS-EIS.
      (e) Other project related costs--$51,390,000 provides for project definition, operating contractor support, site characterization, configuration verification and startup activities.
      (f) Non-Federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--An allowance of $250,000 has been included for operator time during the retrieval process and consumable materials required for operation of the system including dilution chemicals.
   (2) Facility maintenance and repair costs--A minimal allowance of $50,000 has been included for normal maintenance and repair.
   (3) Programmatic operating expenses directly related to the facility--None.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--None.
   (5) GPP or other construction related to programmatic effort--None.
   (6) Utility costs--Negligible.
   (7) Other costs--None.

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Department of Energy
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Replacement of Cross-Site Transfer System, Richland, Washington

2a. Project No.: 93-D-182
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Qtr. FY 1993

3b. A-E Work (Titles I & II) Duration: 27 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $47,200
Total Project Cost (TPC) -- $52,700

4a. Date Physical Construction Starts: 1st Qtr. FY 1996

4b. Date Construction Ends: 4th Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $47,200
TPC -- $52,700

7. Financial schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 4,495		$ 4,495	$ 930
1994	6,500		2,600	1,186
1995	14,810	- 8,400 a/	10,310	3,362
1996	19,795	- 1,900 b/	17,895	29,822
1997	8,100		8,100	7,930
1998	3,800		3,800	3,970

a/ Use of prior year funds ($3,900,000) for uncosted offset and use of current year funds ($4,500,000) for Congressional rescission.
b/ Use of current year funds to meet uncosted offset for FY 1996.

2379

1. Title and Location of Project: Replacement of Cross-Site Transfer System, Richland, Washington	2a. Project No.: 93-D-182 2b. Construction Funded

8. Project Description, Justification and Scope

This project will provide a replacement piping system for the existing cross-site transfer system. The existing system does not conform to all current regulatory requirements for transporting radioactive liquid waste as defined in Department of Energy (DOE) Order 6430.1A, "General Design Criteria," and Washington Administrative Code 173-303-640. The replacement piping system will connect the 241-SY-A and B valve boxes in the 200 West Area SY Tank Farm to the 244-A lift station in the 200 East Area. The project will feature parallel, encased pipelines, remote leak detection, diversion boxes, vent station, and booster pump assemblies.

Six and one-half miles of encased, corrosion protected pipelines will be designed and installed to withstand design basis seismic events. Encased pipelines will be constructed of stainless steel inner pipe and carbon steel outer encasement. Leak detection devices and pressure testing capabilities will be provided for the encased piping. If there is a failure of the primary piping, leakage into the encasement will drain to, and be collected in diversion boxes and pumped to double-contained waste storage tanks or catch tanks, as required. Pipelines will be covered with adequate earth cover to provide radiation shielding, consistent with as low as reasonably achievable (ALARA) practices.

The key function of the project is to transfer for treatment and final disposal wastes including:

- o Plutonium Finishing Plant waste.
- o West Area single-shell tank waste.
- o Decontamination and decommissioning waste streams from T-Plant, U-Plant, and 222-S Laboratory.

Tri-Party Agreement milestones M-43-07-T01, "Complete Definitive Design," scheduled for August 1995; M-43-07A, "Start Construction," scheduled for November 1995; M-43-07B, "Complete Construction," scheduled for August 1997; and M-43-07C, "System Operational," scheduled for February 1998 will not be achieved if project is not funded. In addition, this project is required to support numerous other Tri-Party Agreement milestones (e.g., M-43-00, "Additional DST Storage Capacity," scheduled for December 1998; M-51-00, "Establish Milestones for Tank Waste Pretreatment," scheduled for December 2004; M-57-00, "Establish Milestones for Immobilization of High-Level Tank Waste," scheduled for December 2009; M-60-00, "Establish Milestones for Immobilization of Low-Level Tank Waste," scheduled for June 2005).

The FY 1997 request will be used to complete Title III design/inspection and construction. The funds will provide for onsite, offsite (fixed price), and operating contractors, and project management.

2380

1. Title and Location of Project: Replacement of Cross-Site Transfer System, Richland, Washington	2a. Project No.: 93-D-182 2b. Construction Funded

9. Details of Cost Estimate a/	Item Cost	Total Cost
a. Design and Management costs		$ 9,498
1. Engineering design and inspection at approximately 20 percent of construction costs, Item c (cost for design drawings and specifications $5,240)	$ 5,693	
2. Construction Management Costs	665	
3. Project management at 2 percent of construction costs (item c)	3,140	
b. Land and land rights		0
c. Construction costs		28,196
1. Improvements to land	2,670	
2. Buildings	0	
3. Other structures	1,455	
4. Utilities	2,240	
5. Special facilities	21,831	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 37,694
h. Contingencies at approximately 25 percent of above costs		9,506
i. Total line item cost (section 12, a. 1. (a) b/		$ 47,200
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$ 47,200

a/ This estimate is based on Title I rebaseline documented on the approved change request (CR-058-021). New costs reflect changes through approved CRW058-037) and the preliminary 60% design complete working estimate.

b/ All costs include escalation for engineering and construction based on the "Hanford Material and Labor Escalation Study," prepared by ICF Kaiser Engineers Hanford Company, dated February 1993.

10. Method of Performance

Design and inspection will be accomplished by the onsite engineer/constructor (E/C) contractor. The majority of the construction effort will be performed by an offsite fixed-price contractor. Work in contaminated areas will be performed by the onsite E/C contractor. Reprogramming of existing microprocesses control systems or new control software shall be provided by the operating contractor. Jumper installation shall be performed by the operating contractor.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 2,116	$ 3,362	$29,822	$ 7,930	$ 3,970	$ 47,200
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 2,116	$ 3,362	$29,822	$ 7,930	$ 3,970	$ 47,200
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	375	0	0	0	0	375
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	50	160	80	0	0	290
(e) Other project-related costs a/	1,135	817	1,023	1,790	70	4,835
Total other project costs	$ 1,560	$ 977	$ 1,103	$ 1,790	$ 70	$ 5,500
Total project costs	$ 3,676	$ 4,339	$30,925	$ 9,720	$ 3,662	$ 52,700
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 3,676	$ 4,339	$30,925	$ 9,720	$ 3,662	$ 52,700

a/ OPC currently includes operator training, operations reviews, and health physics technician support of construction and may be increased as reviews are conducted. Costs reflect changes through approved change requests CRW058-037.

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--50 years) a/

(1)	Facility operating costs	$ 0
(2)	Facility maintenance and repair costs	100
(3)	Programmatic operating expenses directly related to the facility	0
(4)	Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5)	GPP or other construction related to the programmatic effort in the facility	0
(6)	Utility costs	0
(7)	Other costs	0
	Total related annual funding	$ 100

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--Includes project management costs.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal contribution--None.
   (2) Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--Expense funds in the amount of $375,000 have been used for conceptual design, including preparation of a cost estimate and environmental documentation.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--$290,000; costs include preparation and support of the Action Description Memorandum and the Environmental Assessment.
      (e) Other project related costs--$4,835,000; including the cost of project support, the operational test procedure training and other startup costs, radiation monitoring, and initial decontamination at existing diversion boxes.
      (f) Non-Federal contribution--None.

a/ Change reflects modifications made to the Project Plan and design criteria from 35 to 50 year life.

1. Title and Location of Project: Replacement of Cross-Site Transfer System, Richland, Washington	2a. Project No.: 93-D-182 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding
   (1) Facility operating costs--None above the currently existing system.
   (2) Facility maintenance and repair costs--$100,000.
   (3) Programmatic operating expenses directly related to the facility--This project supports the overall permanent waste disposal mission at Hanford. No direct changes to this mission will occur as a result of this project.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--None.
   (5) GPP or other construction related to programmatic effort--None.
   (6) Utility costs--None.
   (7) Other costs--None.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: High-Level Waste Removal from Filled Waste Tanks, a/
Savannah River, South Carolina

2a. Project No.: 93-D-187 a/
2b. Construction Funded

3a. Date A-E Work Initiated: 1st Qtr. FY 1979

3b. A-E Work (Titles I & II) Duration: 327 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $602,700
Total Project Cost (TPC) -- $991,446

4a. Date Physical Construction Starts: 2nd Qtr. FY 1980

4b. Date Construction Ends: 4th Qtr. FY 2008 c/

6. Current Cost Estimate:
TEC -- $565,050 b/c/
TPC -- $828,238 b/c/

7. Financial schedule (Federal Funds):

Fiscal Year	Appropriation a/	Adjustments	Obligations	Costs
1993	$ 2,000		$ 0	$ 0
1994	3,000 d/	+192,420 e/	197,420	197,769
1995	26,525	- 3,850 f/	22,675	25,233
1996	19,700		19,700	19,700
1997	20,000		20,000	15,000
1998	4,242		4,242	4,242
1999	6,500		6,500	6,500
2000	6,695		6,695	6,695
Outyears	287,818		287,818	289,911

a/ Beginning with FY 1995 funding, as reflected in this project data sheet, this title and line item number will refer to a planned grouping of six subprojects. Those projects include the original line item, three previously Operating Expense funded projects, and two future projects.
b/ This includes the subprojects 01, 02 , 03, and 04. It does not include the TEC and TPC associated with the two future subprojects 05 and 06.
c/ Estimates are subject to Baseline Change Proposal approval, and revision for improvements from alternate waste removal techniques to reduce costs.
d/ FY 1994 Budget Amendment reallocation of $10,230,000 to reflect delay in project consolidation and reprioritization of subprojects.
e/ This represents the Operational Expense (OPEX) funded costs through FY 1994 of the three previously OPEX funded projects.
f/ Use of $1,700,000 current year funds for Productivity Savings and $2,150,000 for FY 1995 rescission.

2385

8. Project Description, Justification and Scope

The Waste Removal Program will provide, through a series of six subprojects, technical support, design, equipment, construction, and installation of waste removal facilities for all Type I, II, III and IV High-Level Radioactive Waste Tanks excluding those associated with the In-Tank Precipitation (ITP). A total of 47 waste tanks will be covered under this project. Facility modifications to allow processing of sludge prior to feeding to Defense Waste Processing Facility (DWPF) are included. In general, the waste removal facilities include slurry pumps, transfer pumps, transfer jets, structural support steel and associated instrumentation and distributed controls system (DCS). Each subproject will provide this equipment to allow salt and/or sludge to be removed and transferred to either ITP or Extended Sludge Processing (ESP) for eventual feed to the DWPF. Each of the subprojects will provide the facilities necessary to perform waste removal from the associated tanks. The waste removal process itself will be performed and funded by Operations. This project does not include Decontamination & Decommission (D&D) of the tanks.

The purpose of this project is for removal of waste which is essential for maintaining the DWPF operations to meet Federal Facilities Compliance Agreement (FFCA), waste processing commitments, and Savannah River Site commitments to minimize high-level liquid waste in storage, and to provide support for continued waste receipts. This project supports the FFA commitment to discontinue the use of waste tanks which do not provide adequate secondary containment (Type I, II, and IV tanks).

a. Subproject #01 - Waste Removal, Phase II, S-2081

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEARS	Construction Start - Completion Dates
$307,050	$124,207	$ 7,700	$ 5,054	$ 6,710	$163,379	2nd Qtr FY 1980 3rd Qtr FY 2007

This subproject was previously an authorized operating expense funded project. This subproject provides modifications to existing equipment to improve monitoring and/or waste removal facilities on twenty-four existing Type I, II, and IV tanks.

This subproject supports the Federal Facilities Agreement (FFA) commitment to discontinue the use of waste tanks which do not provide adequate secondary containment (Type I, II, and IV tanks). The FY 1997 funds will support design and construction consistent with High-Level Waste System Plan.

S-2081 also provides three instrument and electrical control rooms, each with approximately 2,500 square feet of floor space. This project includes modifications to three Type III waste tanks to provide facilities to process sludge removed by all waste removal projects prior to being fed to DWPF.

8. Project Description, Justification and Scope (continued)

b. Subproject #02 - Type III Tank Salt Removal, Phase I, S-3291

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEARS	Construction Start - Completion Dates
$ 47,800	$ 30,854	$ 4,500	$ 5,101	$ 5,247	$ 2,098	4th Qtr FY 1987 1st Qtr FY 1998

This subproject was previously an authorized operating expense funded project. This subproject provides for waste removal facilities for three Type III tanks and a new (approximately 5,000 sq. ft.) control room expansion of the existing F-Area control room. The FY 1997 funds will provide for the support of design and construction consistent with the High-Level Waste System Plan.

c. Subproject #03 - Type III Tank Salt Removal, Phase II, S-2860

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEARS	Construction Start - Completion Dates
$106,500	$ 37,359	$10,175	$ 6,601	$ 8,043	$ 44,322	2nd Qtr FY 1990 2nd Qtr FY 2000

This subproject was previously an authorized operating expense funded project. This subproject provides for waste removal facilities for two Type III tanks. In order to support waste removal activities a new control room (approximately 15,000 sq. ft.) with a distributed control system facility (approximately 31,000 sq. ft.) will be provided. This subproject provides modifications to existing facilities on 17 Type III waste tanks, evaporators, and supporting facilities to improve waste tank monitoring and control.

The FY 1997 funds will provide for the support of design and construction consistent with the High-Level Waste System Plan.

d. Subproject #04 - Waste Removal Facilities, Phase III

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEARS	Construction Start - Completion Dates
$103,700	$ 5,000	$ 300	$ 2,944	$ 0	$ 95,456	3rd Qtr FY 1996 4th Qtr FY 2008

8. Project Description, Justification and Scope (continued)

This subproject was the original scope for this line item. Previous TEC of $86,500,000 increased due to project extension to align with the High-Level Waste System Plan and to provide alignment of TEC/OPC accounting guidance. This subproject will provide for waste removal facilities for six Type III tanks in F- and H-Area Tank Farms. It also provides for caustic/inhibitor addition facilities for pH adjustment on tanks 35H, 36H, 37H. The FY 1997 funds will provide for the support of design and construction consistent with the High-Level Waste System Plan.

e. Subproject #05 - Type III Tank Waste Removal Facilities, Phase IV, FY 2005 New Start

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEARS	Construction Start - Completion Dates
$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	

This subproject provides for waste removal facilities for six Type III tanks in F- and H-Areas, and provides for infrastructure requirements to support waste removal. The TPC rough order of magnitude estimate is $125,000,000. This subproject will also provide modifications to 10 existing Type III tanks and supporting facilities to improve monitoring and control via a Distributed Control System.

f. Subproject #06 - Type III Tank Waste Removal Facilities, Phase V, FY 2008 New Start

TEC	PREV.	FY 1995	FY 1996	FY 1997	OUTYEARS	Construction Start - Completion Dates
$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	

This subproject will provide waste removal facilities for the remaining three Type III tanks. The TPC rough order of magnitude estimate is $75,000,000.

2388

1. Title and Location of Project: High-Level Waste Removal from Filled Waste Tanks, Savannah River, South Carolina

2a. Project No.: 93-D-187
2b. Construction Funded

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management costs		$163,522
1. Engineering design and inspection at approximately 35.2 percent of construction costs, Item c (Design, Drawings, and Specifications: ($9,000)	$114,571	
2. Construction Management Costs	19,667	
3. Project management at 9.0 percent of construction costs (item c)	29,284	
b. Land and land rights		0
c. Construction costs		325,744
1. Improvements to land	0	
2. Buildings (support facilities)	6,936	
3. Other structures	216,732	
4. Utilities	0	
5. Special facilities	102,076	
d. Standard equipment		1,000
e. Major computer items		358
f. Removal cost less salvage		12,000
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$502,624
h. Contingencies at approximately 12.4 percent of above costs		62,426
i. Total line item cost (section 12, a. 1. (a)		$565,050
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$565,050

a/ Cost estimate basis for subproject 04 is a completed Conceptual Design Report. Cost for subprojects 01, 02, and 03 are completed Title I estimates. Costs and schedule for subprojects 05 and 06 are not included in this estimate since these tanks are not scheduled for waste removal until after 2010, this will allow the estimates to incorporate all the actual cost, schedule and technical performance from earlier tanks resulting in estimates with less uncertainty.

2889

1. Title and Location of Project: High-Level Waste Removal from Filled Waste Tanks, Savannah River, South Carolina	2a. Project No.: 93-D-187 2b. Construction Funded

9. Details of Cost Estimate (continued) a/

The DOE escalation rates (% per year) used for this estimate are as follows:

Fiscal Year	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	OUTYEARS
Escalation	2.4	2.5	3.5	3.5	3.5	3.5	3.3	3.3	3.3

The above estimate includes $50,967,000 for escalation.

10. Method of Performance

Design will be performed by Bechtel Savannah River Design Engineering and a project engineering services contract or a fixed-price contractor for the Management and Operating (M&O) contractor at the Savannah River Site. Construction and procurement will be accomplished utilizing fixed-price subcontracts awarded on the basis of competitive bidding, where possible.

2390

1. Title and Location of Project: High-Level Waste Removal from Filled Waste Tanks, Savannah River, South Carolina

2a. Project No.: 93-D-187
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$197,769	$ 25,233	$ 19,700	$15,000	$307,348	$565,050
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$197,769	$ 25,233	$ 19,700	$15,000	$307,348	$565,050
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	800	0	0	0	0	800
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project-related costs	8,582	8,050	6,884	7,730	231,142	262,388
Total other project costs	$ 9,382	$ 8,050	$ 6,884	$ 7,730	$231,142	$263,188
Total project costs	$207,151	$ 33,283	$ 26,584	$22,730	$538,490	$828,238
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$207,151	$ 33,283	$ 26,584	$22,730	$538,490	$828,238

b. Related annual funding (estimated life of project--30 years)	
(1) Facility operating costs	$ 6,100
(2) Facility maintenance and repair costs	2,000
(3) Programmatic operating expenses directly related to the facility a/	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	500
(5) GPP or other construction related to the programmatic effort in the facility a/	0
(6) Utility costs	0
(7) Other costs	0
Total related annual funding	$ 8,600

1. Title and Location of Project: High-Level Waste Removal from Filled Waste Tanks, Savannah River, South Carolina	2a. Project No.: 93-D-187 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--Narrative not required.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal contribution--None.

   (2) Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--$800,000.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--None.
      (e) Other project related costs--Includes $262,388,000 costs to fund permitting activities, Post Modification Testing Reviews, one time program development startup, and operating contractor project support.
      (f) Non-Federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--Includes operating manpower, supplies and energy and additional operators. It is estimated that operation of this facility will result in a net annual cost increase of $6,100,000 and 56 FTEs. This facility does not replace an existing facility.
   (2) Facility maintenance and repair costs--$2,000,000.
   (3) Programmatic operating expenses directly related to the facility--Included in item one.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--$500,000.
   (5) GPP or other construction related to programmatic effort--None.
   (6) Utility costs--Included in item one.
   (7) Other costs--None.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Replacement High-Level Waste Evaporator, Savannah River, South Carolina

2a. Project No.: 89-D-174
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 3rd Qtr. FY 1989

3b. A-E Work (Titles I & II) Duration: 60 months c/

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $118,200
Total Project Cost (TPC) -- $167,852

4a. Date Physical Construction Starts: 2nd Qtr. FY 1990

4b. Date Construction Ends: 1st Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $118,200
TPC -- $154,100

7. Financial schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
Previous	$ 24,070	+ 14,380 a/	$ 38,450	$ 16,795
1992	14,159 b/		14,159	13,385
1993	15,795		11,000	16,800
1994	12,974 c/		17,769	28,005
1995	18,000	- 5,000 d/	13,000	13,414
1996	11,500		11,500	12,371
1997	11,500		11,500	10,987
1998	822		822	4,110
1999	0		0	2,333

a/ Accounting adjustment of $380,000 to correct previous accounting deficiencies and FY 1991 Reprogramming of $14,000,000.
b/ Correct funding irregularities of $14,000 (92-R-15).
c/ FY 1994 Congressional Budget Amendment reduction of $11,000,000.
d/ Use of current year funds ($5,000,000) for Productivity Savings.
e/ Title II design was completed in April 1994.

1. Title and location of project: Replacement High-Level Waste Evaporator, Savannah River, South Carolina	2a. Project No.: 89-D-174 b. Construction Funded

8. Project Description, Justification and Scope

The Replacement High-Level Waste Evaporator (RHLWE) will provide the cost-effective waste concentration facility necessary for waste solidification programs at the Savannah River Site (SRS). The proposed facility is capable of removing 7.6 million gallons of water each year from the waste management complex after final processing through the existing Effluent Treatment Facility. Along with two other existing evaporators, it will be able to handle the additional volume of waste generated by the Defense Waste Processing Facility (DWPF) and associated waste tank farm processes.

The RHLWE will evaporate water from liquid, high activity radioactive waste so that less volume is needed for long-term storage. The Replacement High Level Waste Evaporator is needed to ensure that waste solidification operations including DWPF at the SRS are not limited by waste tank farm space. Space in the tank farms is currently being maximized by existing evaporators. The 242-2H evaporator is operational yet unreliable, and cannot process high heat waste from H Canyon. The 242-2F evaporator has been converted to process both high heat and low heat waste. The 242-1F evaporator has become unreliable, inefficient and is no longer operational. The 242-1H evaporator has been shutdown due to equipment failure. There are no plans to restart the 242-1F and 242-1H evaporators. The 242-2H, 242-2F evaporators, and RHLWE will be needed for the DWPF recycle, ESP washwater, and long term HLW system operation, particularly at attainments above those planned for Sludge Batch #1.

In yearly operating costs alone, the new evaporator can produce a significant cost savings. In addition, radiation exposure to personnel will be reduced by 30 man-rem per year, which represents about 80 percent of evaporator-related exposure. Future annual operating cost are anticipated to be $4,919,900 per year.

The H-Area Tank 32, an existing double walled waste tank, will be used as the feed tank. Four existing tanks (Tanks 29, 30, 31, and 37) will be used as concentrate receiver tanks. Underground lines from the new evaporator to the existing tanks will be provided by this project. Underground line to Tank 35 has been descoped through change control due to reduced future concentrate receiver tank space needs.

FY 1997 funds will be used to continue construction, including Tank 32 feed and return line installation, Tank 29 and Tank 30 gravity drain line installation, heating and ventilation (H&V) system installation (by subcontractor), cooling tower installation, and fire protection installation (by fixed price contract).

2394

1. Title and location of project: Replacement High-Level Waste Evaporator, Savannah River, South Carolina

2a. Project No.: 89-D-174
b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management costs		$ 67,100
1. Engineering design and inspection at approximately 89.1 percent of construction costs, Item b (Design, Drawings, and Specifications: $2,510)	$ 41,850	
2. Construction Management Costs	14,200	
3. Project management at 23.5 percent of construction costs (item c)	11,050	
b. Land and land rights		0
c. Construction costs		46,970
1. Improvements to land	4,700	
2. Buildings	14,090	
3. Other structures	7,040	
4. Utilities	2,350	
5. Special facilities	18,790	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$114,070
h. Contingencies at approximately 3.6 percent of above costs		4,130
i. Total line item cost (section 12, a. 1. (a)		$118,200
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$118,200

The DOE escalation rates (% per year) used for this estimate are as follows:

Fiscal Year	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Escalation	3.5	3.5	3.5	3.3	3.3

The above estimate includes $1,334,000 for escalation.

2995

1. Title and location of project: Replacement High-Level Waste Evaporator, Savannah River, South Carolina

2a. Project No.: 89-D-174
b. Construction Funded

10. Method of Performance

Design was performed by the Site's Project Engineering Services Contractor. Construction and procurement are being accomplished by the Management and Operating (M&O) contractor, utilizing fixed price subcontracts awarded on the basis of competitive bidding to the maximum extent.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$74,985	$13,414	$12,371	$10,987	$ 6,443	$118,200
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$74,985	$13,414	$12,371	$10,987	$ 6,443	$118,200
(2) Other project costs						
(a) R&D necessary to complete project	$ 200	$ 0	$ 0	$ 0	$ 0	$ 200
(b) Conceptual design costs	300	0	0	0	0	300
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs a/	0	0	0	0	0	0
(e) Other project-related costs	11,443	1,461	3,363	5,893	13,240	35,400
Total other project costs	$11,943	$ 1,461	$ 3,363	$ 5,893	$13,240	$ 35,900
Total project costs	$86,928	$14,875	$15,734	$16,880	$19,683	$154,100
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$86,928	$14,875	$15,734	$16,880	$19,683	$154,100

a/ These costs included in other project-related costs.

2396

GCG

1. Title and location of project:	Replacement High-Level Waste Evaporator, Savannah River, South Carolina	2a. Project No.: 89-D-174 b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b.	Related annual funding (estimated life of project--30 years) a/	
(1)	Facility operating costs	$ 4,001
(2)	Facility maintenance and repair costs	918
(3)	Programmatic operating expenses directly related to the facility	0
(4)	Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5)	GPP or other construction related to the programmatic effort in the facility	0
(6)	Utility costs	0
(7)	Other costs	0
	Total related annual funding	$ 4,919

a/ This cost and manpower is based on FY 1994 experience at the 242-2H evaporator. The cost has been escalated to FY 2001 dollars.

2397

1. Title and location of project: Replacement High-Level Waste Evaporator, Savannah River, South Carolina	2a. Project No.: 89-D-174 b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--Narrative not required.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal Contribution--None.

   (2) Other project costs
      (a) R&D necessary to complete construction--Activities necessary to improve process and equipment ($200,000).
      (b) Conceptual design--Includes preparation of a cost estimate for project authorization and preparation of the conceptual design package ($300,000).
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--Included in other project-related costs.
      (e) Other project related costs--Includes site characterization and NEPA, studies to optimize process and equipment, environmental permits, ORR, startup, testing, training, spare parts, equipment checkout and run-in assistance ($35,400,000).
      (f) Non-Federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--$4,001,000 includes operating manpower, supplies and energy. The base operation requires two operators (on a four-shift basis). It is estimated that operation of this facility will provide a net annual cost reduction based on the reduced operating (manpower, energy, supplies) cost obtained by retiring the 242-1F evaporator, and potential DWPF waste reduction. The RHLWE is a replacement facility and will require 29.2 full-time equivalents based on FY 1994 experience at 242-2H evaporator.
   (2) Facility maintenance and repair costs--$918,000 and 6.7 full-time equivalents based on FY 1994 experience at 242-2H evaporator.
   (3) Programmatic operating expenses directly related to the facility--None.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--None.
   (5) GPP or other construction related to programmatic effort--None.
   (6) Utility costs--None.
   (7) Other costs--None.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Decontamination and Waste Treatment Facility, Lawrence Livermore National Laboratory, Livermore, California

2a. Project No.: 86-D-103
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 3rd Qtr. FY 1986

3b. A-E Work (Titles I & II) Duration: 48 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $74,000
Total Project Cost (TPC) -- $74,769

4a. Date Physical Construction Starts: 2nd Qtr. FY 1988

4b. Date Construction Ends: 4th Qtr. FY 2000

6. Current Cost Estimate:
TEC -- $68,005
TPC -- $68,774

7. Financial schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
Prior Years	$ 43,792 a/	- 25,000 b/	$ 9,957	$ 9,432
1994	10,260	- 8,000 c/	2,260	74
1995	5,900	- 905 d/	4,495	1,746
1996	8,885	- 500 e/	17,720	11,996
1997	10,000		10,000	12,796
1998	10,000		10,000	13,125
1999	9,000		9,000	11,609
2000	4,573		4,573	7,227

a/ FY 1992 General Reduction of $2,060,000.
b/ $25,000,000 approved FY 1990 reprogramming for the Waste Isolation Pilot Plant.
c/ Prior year funds used for FY 1994 General Reduction.
d/ Use of current year funds ($905,000) for Productivity Savings.
e/ Use of prior year funds to meet uncosted offset to FY 1996 Appropriation.

1. Title and Location of Project: Decontamination and Waste Treatment Facility, Livermore, California	2a. Project No.: 86-D-103 2b. Construction Funded

8. Project Description, Justification and Scope

This project has experienced a number of scope changes since it's inception. The original scope in FY 1986, consisted of a Liquid Waste Processing Facility, a Decontamination Facility, an operational Support Building, mechanical/electrical utility upgrades, and site preparation. The project was located in the southeast corner of the laboratory and the Total Project Cost (TPC) was $11,700,000. Between 1987 and 1990, the location of the site was changed to the northeast corner of the laboratory, due to the potential for seismic activity. The scope was increased to include a Solid Waste Processing Building, an incinerator and burn pan, a boiler and chiller plant, a Reactive Materials Building and a Storage Building. The TPC increased to $40,900,000. In 1990, the Lawrence Livermore National Laboratory Director adopted the recommendation of an internal laboratory panel to delete the incinerator and burn pan from the scope of the project due to public opposition. In 1993, a new baseline was approved which deleted the incinerator and the decontamination building, and added the Real Time Radiography Building, the Transuranic handling facility and the upgrade of Building 494 for mixed waste process development and engineering, increasing the TPC to $74,769,000. In 1993, DOE Oakland did an Integrated Waste Management Study which evaluated the waste management needs of LLNL and concluded that the scope of DWTF did not meet these needs. This resulted in the Alternative Design Review (ADR), which further evaluated the laboratory's waste management needs and compared various options for meeting these needs. The Baseline Change Proposal approved in January 1995, is based on the results of the ADR. This revised baseline represents the final path forward for the design and construction of the facility.

The scope is described in the Construction Project Data Sheet which follows. These changes were initially described in FY 1996 construction project data sheet.

This project will enhance, improve, and expand hazardous waste and mixed waste management at the Laboratory through the construction of approximately 115,500 square feet of new, state-of-the-art facilities for decontamination and waste treatment processes and mixed waste process development and engineering support. This project will provide new, centralized and integrated facilities for the Mixed Waste Management Facility (MWMF) and Hazardous Waste Management (HWM) operations that will meet the requirements for Low Hazards Category 3 Facility. Note that the equipment for the demonstration is not included in the TPC of this line item. The project will include the design and construction of new buildings on a nine-acre site located in the northeast sector of the Laboratory; it will share the site with existing HWM Building 693.

2400

1. Title and Location of Project: Decontamination and Waste Treatment Facility, Livermore, California	2a. Project No.: 86-D-103 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

A 1993 Waste Management study led to an Alternative Design Review which evaluated various options for meeting LLNL's waste management needs. The results of this study were incorporated into a Rebaseline Document (Conceptual Design level). The revised project scope is based on the Rebaseline Document published in November 1994. The Rebaseline Document also integrates the facility to house the Mixed Waste Management Facility demonstrations into the DWTF complex.

This project will provide new, centralized and integrated facilities for the MWMF and HWM operations that will meet the requirements for a Low Hazard Category 3 Facility. The project will include the design and construction of seven new buildings totalling approximately 115,500 square feet on a 9-acre site located in the northeast sector of LLNL, sharing the same site with existing HWM Building 693. It is anticipated that design and construction will be accomplished in five phases to meet project schedule and funding constraints. A brief description of project scope by phase follows.

Phase 1 - Site improvements. This phase includes debris removal, excavation, grading, trenching, electrical service, underground utilities, partial paving, curb and gutter, and sidewalks.
Phase 2 - MWMF. This phase consists of construction of the MWMF/Liquids Waste Processing Building (LWPB) building shell, and those facilities necessary to support the MWMF project. The Boiler/Chiller Building will also be constructed during this phase to provide utility services to the MWMF.
Phase 3 - DWTF. This phase consists of completion of the inside of the LWPB and the Boiler/Chiller Building and construction of the Truck Bay, Solid Waste Processing Building (SWPB), Reactive Materials Building, Chemical Exchange Warehouse/High Curie Waste Storage/Classified Waste Storage Building, and the Radwaste Storage Building.
Phase 4 - DWTF. This phase consists of construction of the Operational Support Building.
Phase 5 - Final site improvements. This phase consists of all remaining site work for the project, such as final grading, paving, parking facility, fencing, landscaping, and exterior lighting.

The proposed Decontamination and Waste Treatment Facility (DWTF) at LLNL will continue to meet the goals of LLNL's waste management program while significantly enhancing LLNL's waste management capabilities. Enhanced capabilities provided by the revised scope include the following: repackaging of radioactive, mixed and TRU wastes, decontamination and size reduction, treatment of mixed, reactive, sewer diversion wastes and proper storage of radioactive, mixed, hazardous and high-curie waste.

In addition to being in compliance with current and imminent regulatory requirements, the integration of the DWTF and the MWMF facility will provide safer and more cost-effective waste operations, restoration of lost capabilities, future mixed waste treatment capabilities, and, because all waste operations will be performed indoors, a significantly reduced risk of environmental impacts.

8. Project Description, Justification and Scope (continued)

In 1990, the RCRA land disposal restrictions become effective, prohibiting the land disposal of untreated hazardous and mixed radioactive wastes. DOE disposal facilities (such as the Nevada Test Site) that previously accepted untreated mixed wastes will no longer be permitted to accept such wastes. The proposed DWTF will be capable of treating a portion of land disposal restricted mixed and hazardous wastes.

a. Mixed Waste Management Facility/Liquid Waste Processing Building

The existing Liquid Waste Facility (514) is an old engine test building constructed in the 1940's for use by the U.S. Navy. The facility has been modified to process radioactive and hazardous liquid wastes through a single process line. Some of the present equipment and much of the present piping is deteriorated and requires expensive repair to maintain operations. The present location, which is separated from the other Hazardous Waste Management facilities, has insufficient space to allow for the additional expansion required to provide complying facilities. Due to the limited treatment technology employed, and excessive volume of end product that is produced it is difficult to solidify for disposal. The present radioactive and mixed wastes solidification building does not meet the ventilation, contamination and confinement requirements of DOE Order 6430.1A. Continuing maintenance and improvement has not alleviated the situation. In addition to the liquid waste processing systems, the new building will house the analytical laboratory, maintenance shop, a silver recovery facility, and the MWMF. MWMF will house a Pilot Plant which will evaluate technologies capable of treating mixed waste. The advantages of this facility included:

- o Siting the new facility in a location which meets the seismic requirement of RCRA and the State.
- o Providing sufficient treatment to assure meeting the new restrictive discharge limits established by regulators.
- o Providing more efficient technology to minimize disposal volume to comply with environmental regulations and DOE Orders.
- o Providing close capture ventilation and spill containment systems to comply with the environmental regulations which limit air emissions and prohibit liquid discharges to the environment.
- o Designing mitigative and preventive features to meet current requirements of DOE Orders and LLNL Health and Safety standards in accordance with the hazardous classification.
- o Consolidating the liquid waste operation into a centralized hazardous waste management facility which will optimize manpower and facility utilization.

2402

1. Title and Location of Project: Decontamination and Waste Treatment Facility, Livermore, California	2a. Project No.: 86-D-103 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

b. Waste Receiving, Classification, and Solid Waste Processing Building

Receiving and Classification Area

Receiving and classification is currently being performed in an open shed with limited space resulting in many containers being stored outdoors and the remainder receiving only minimal weather protection. There are no facilities to properly segregate incompatible wastes, and nothing to contain spills or container ruptures as required by RCRA, California hazardous wastes regulations, and DOE Orders. An open area is still used, although spills are contained, they would mix with rainwater. The new facility will provide the space necessary to receive, segregate, and store chemical and radioactive containers of all types and sized until the proper analysis and classification is completed and a determination made on the treatment, packaging and shipping methods required to properly prepare them for ultimate safe disposal. A work station will be included in the facility for maintaining incoming and outgoing shipping documentation and inputting data to the central computer through a terminal. The building will also house the personnel change and shower facilities.

Solid Waste Processing Area

Radioactive solid waste processing consists of packaging and compacting of low-level waste and TRU waste and is presently done in the Building 612, Dry Waste Facility which is seismically deficient and cannot meet the ALARA (As Low As Reasonably Achievable) requirements of DOE Order 6430.1A. Specific advantages of the new facility are:

- o Meeting the UBC and LLNL seismic requirements.
- o Increasing processing capability with safer handling and control.
- o Provides TRU size reduction, packaging, and container inspection capability.
- o Provides space for real time radiography (RTR) equipment to be transferred from another location.
- o Provides space for segmented gamma scanner or equivalent.
- o Designing mitigative and preventive features to meet current requirements of DOE Orders and LLNL Health and Safety standards in accordance with the hazard classification.

2403

8. Project Description, Justification and Scope (continued)

Container Washing Area

A container washing area will be included as part of the Waste Receiving, Classification, and Solid Waste Processing Building to provide adequate facilities for cleaning the non-radioactive waste containers and permit their reuse. This facility will assure compliance with the waste compatibility standards and container washing and rinsing requirements of RCRA and the DOHS.

c. Reactive Materials Building

Because the DWTF had to be relocated to the northeast corner of the laboratory, the existing Reactive Materials Building 614 cannot be used. A new facility will have to be constructed at the new DWTF site to store reactive waste and to house the process equipment which allows for the safe reaction and neutralization of small quantities of a large variety of highly reactive exotic gases and chemicals that offsite commercial disposers will not accept.

d. Storage Building

Radioactive Waste Storage Area

Radioactive and mixed wastes stored at the present Hazardous Waste Management site are stored outside exposing them to the weather. The radioactive waste storage area is required at the new DWTF in order to provide safe and compliant storage for radioactive and mixed wastes.

Clean Storage Area

It was intended to modify existing Building 612 to provide an enclosed storage area for clean containers, treatment chemicals, and supplies. Now that the DWTF site has been relocated away from the existing Hazardous Waste Management site, a new building must be constructed to provide the necessary protection needed to maintain new waste storage containers in good condition prior to use and to assure safe and proper storage for treatment chemicals and supplies.

2404

1. Title and Location of Project: Decontamination and Waste Treatment Facility, Livermore, California	2a. Project No.: 86-D-103 2b. Construction Funded

8. Project Description, Justification and Scope (Continued)

e. Operational Support Building

This facility will provide the following:

- o Central support for the four major operational functions; waste receiving and shipping, mixed aqueous waste treatment, solid LLW waste processing and storage.
- o Bring together the supervisory, administrative, technical support, and operational personnel currently housed in dispersed locations.
- o House the Hazardous Waste Management computer system for tracking hazardous waste and providing on-line information on waste material during emergency conditions.
- o Provide a training room to meet the requirements of 40 CFR 264.16 for training of personnel in handling hazardous waste.
- o Provide a centralized reference library for hazardous waste information.
- o Provide access control for DWTF/MWMF personnel and visitors entering and leaving the DWTF facilities.

f. Standby Generator

The standby generator is necessary to supply standby electrical power to critical facilities and operations in the DWTF during and following an earthquake. It must be invulnerable to damage to assure sustained electric power to equipment in the moderate hazard facilities which must continue to operate, i.e., ventilation, fire protection, and alarm systems, and also allow the safe shut-down of critical hazardous waste process systems.

2405

1. Title and Location of Project: Decontamination and Waste Treatment Facility, Livermore, California

2a. Project No.: 86-D-103
2b. Construction Funded

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management costs		$ 14,654
1. Engineering design and inspection at approximately 28 percent of construction costs, Item c (Design, Drawings, and Specifications: $7,758)	$ 9,717	
2. Construction Management Costs	2,129	
3. Project management at 8 percent of construction costs (item c)	2,808	
b. Land and land rights (EIS, SAR, and Environmental Permits to construct and operate)		7,567
c. Construction costs		35,017
1. Improvements to land (including grading, paving, walks and landscaping)	1,644	
2. Buildings (MWMF/LWPB-appx 59,950 sf at appx $251/sf; Waste Receiving/Solid Waste/Truck Bay-appx 20,499 sf at appx $186/sf; Reactive Materials-appx 3,950 sf at $256/sf; RAD Storage-appx 9,600 sf at $81/sf; CHEW/High Curie Waste Storage-appx 7,200 sf at $123/sf; Operations Support-appx 11,200 sf at $168/sf)	23,379	
3. Other structures	0	
4. Utilities (including boiler/chiller, mechanical, power, communications storm and sanitary sewer)	5,929	
5. Special facilities	3,529	
6. Activation and security	536	
d. Standard equipment (See Schedule 2)		1,240
e. Major computer items		0
f. Removal cost less salvage (See Schedule 3)		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 58,478
h. Contingencies at approximately 16 percent of above costs		9,527
i. Total line item cost (section 12, a. 1. (a)		$ 68,005
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$ 68,005

a/ The ED&I costs include the costs from the completed original design which cannot be used. These costs are unrecoverable.

2406

1. Title and Location of Project: Decontamination and Waste Treatment Facility, Livermore, California	2a. Project No.: 86-D-103 2b. Construction Funded

10. Method of Performance

Current estimate based on re-baseline cost estimate. Escalation is applied according to LLNL Cost Estimating Procedures and LLNL approved escalation rates. This project has been estimated with full overhead. LLNL and the Department of Energy Oakland Operations Office are in the process of reviewing the possibility of an incremental overhead rate for construction projects. Based on the approval of an incremental overhead rate, the actual rate applied may be less than the project was originally estimated.

Contracting arrangements are as follows:

Design will be on the basis of a negotiated architect-engineer contract. Major equipment requiring long-lead time will be purchased by LLNL early in the project on the basis of competitive bidding. To the extent feasible, construction will be accomplished by a fixed-price contract awarded on the basis of competitive bidding. Minor architect-engineering work and activation will be performed by LLNL forces.

2407

1. Title and Location of Project: Decontamination and Waste Treatment Facility, Livermore, California

2a. Project No.: 86-D-103
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 9,506	$ 1,746	$11,996	$12,796	$31,961	$ 68,005
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 9,506	$ 1,746	$11,996	$12,796	$31,961	$ 68,005
(2) Other project costs						
(a) R&D necessary to complete project	$ 454	$ 0	$ 0	$ 0	$ 0	$ 454
(b) Conceptual design costs	315	0	0	0	0	315
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project-related costs a/	0	0	0	0	0	0
Total other project costs	$ 769	$ 0	$ 0	$ 0	$ 0	$ 769
Total project costs	$10,275	$ 1,746	$11,996	$12,796	$31,961	$ 68,774
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$10,275	$ 1,746	$11,996	$12,796	$31,961	$ 68,774

b. Related annual funding (estimated life of project--40 years)	
(1) Facility operating costs	$ 1,165
(2) Facility maintenance and repair costs	1,003
(3) Programmatic operating expenses directly related to the facility	4,700
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	400
(5) GPP or other construction related to the programmatic effort in the facility	200
(6) Utility costs	0
(7) Other costs	0
Total related annual funding	$ 7,468

a/ NEPA and Environmental Permitting costs are included in construction line item. Decontamination and Decommissioning will be funded by another project.

2408

1. Title and Location of Project: Decontamination and Waste Treatment Facility, Livermore, California	2a. Project No.: 86-D-103 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--Narrative not required.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
      (e) Non-Federal Contribution--None.
   (2) Other project costs
      (a) R&D necessary to complete construction--Funding of $454,000 in this classification represents year R&D costs required to develop project and seismic criteria. Funding in this classification represents prior year R&D costs required to develop project and seismic criteria.
      (b) Conceptual design--Total funding of $315,000 in this classification represents the conceptual design cost and other studies determined to be necessary.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--None.
      (e) Other project related costs--None.
      (f) Non-Federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--Based on projected space recharge of $10.00 per square foot -- operating costs of the facility in 1999 are estimated to be $1,100,000 per year including escalation. The funds for these cost are a normal part of the past and current programs.
   (2) Facility maintenance and repair costs--Labor is estimated at 7.6 FTEs to support the operations at $132,000 per year for a total annual cost of $1,000,000. The funds for these people are a normal part of the past and current programs.
   (3) Programmatic operating expenses directly related to the facility--This estimate is for 30 Hazardous Waste Management operating and support personnel at $132,000 average per person in FY 1999 and for an estimated annual cost of $750,000 for chemicals, drums, pumps, spare parts, equipment replacement, etc. The operating funds for these people are a normal part of the past and current programs.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--This is an average annual estimate which includes both the small items needed for continuous operation of the facility and the occasional large item (over $200,000) which cannot be described at this time, but can be predicted as needed to maintain technical excellence in efforts conducted in the facility.
   (5) GPP or other construction related to programmatic effort--Initially no GPP costs are anticipated, but to keep abreast of technology, presently undefined alterations will likely be required in the future.
   (6) Utility costs--Included in the space recharge itemized in Facility operating costs.
   (7) Other costs--None.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Defense Waste Processing Facility Saltstone Vault #2, Savannah River Site, Aiken, South Carolina

2a. Project No. a/
2b. Operating Expense Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 4th Quarter FY 1991

3b. A-E Work (Titles I and II) Duration: 14 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $19,455
Total Project Cost (TPC) -- $20,280

4a. Date Physical Construction Starts: 1st Quarter FY 1998

4b. Date Construction Ends: 3rd Quarter FY 2000

6. Current Cost Estimate:
TEC -- $12,000 b/
TPC -- $12,825

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1992	$ 1,000		$ 1,000	$ 538
1993	0		0	125
1994	161	- 258 c/	- 97	240
1995	0		0	0
1996	0		0	0
1997	680		680	500
1998	2,000		2,000	2,000
1999	4,231		4,231	3,047
2000	4,186		4,186	5,550

a/ It should be noted that this project is justified as an operating expense funded construction project. It has been reformatted only to comply with the revised DOE Order 5100.3. It is not intended to be funded as a capital line item.

b/ The reduction from the previous TEC ($19,455) to the current TEC ($12,000) reflects the construction of the vault to one half (1/2) its original size.

c/ Reflects reduction/delays in funding due to change in need date.

1. Title and Location of Project: Defense Waste Processing Facility Saltstone Vault #2, Savannah River Site, Aiken, South Carolina	2a. Project No.: a/ 2b. Operating Expense Funded

8. Project Description, Justification and Scope

This project provides the design and construction of Vault #2 in the Z-Area saltstone disposal facility. The vault will be a concrete structure with approximate outside dimensions of 300 feet in length, 200 feet in width, and 25 feet in height. The interior of the vault will be divided into 6 cells which have approximate dimensions of 100 feet by 100 feet. The cells will be arranged into two rows of three cells. The cells will be filled with saltstone grout one at a time. The vault will have a permanent roof consisting of a combination of precast and cast-in-place concrete. Vault #2 will be built adjacent to, but not connected to, Vault #1.

This project will ensure that the Z-Area saltstone facility will continue to operate at designed production rates and fulfill its waste disposal commitments by providing an additional 1.4 million cubic feet of vault space. In order to fulfill this obligation, additional saltstone vault space must be provided by 1st quarter FY 2001. This additional vault space is required due to the projected In-Tank Precipitation (ITP) process startup and the continued salt waste flow rates to the facility from the Effluent Treatment Facility (ETF).

Saltstone is the end product of salt waste streams generated by the ETF and the ITP process. This waste is passed to Tank 50 in H-Area, and subsequently is combined with flyash, slag, and cement in Z-Area to make a cementitious grout which is pumped into large concrete vaults and allowed to solidify. The vaults are intended to provide the necessary diffusion barrier for the long term performance of the saltstone and provide weather protection until final closure. After a vault has been filled, it will be sealed by filling all of the void spaces with clean grout. This will constitute interim closure. Twenty to thirty years later, a final closure consisting of a clay cap and soil overburden will be constructed. The purpose of this final closure is to protect the vaults from rainwater infiltration by diverting the rainwater away from the vaults.

The purpose of this project is to ensure that the Z-Area saltstone facility will continue to operate at designated production rates and fulfill its waste disposal commitments. The Z-Area saltstone facility is scheduled to fill the existing vault space by the 4th quarter FY 2000.

This project will have negligible annual operating and maintenance cost.

FY 1997 funding will be used to complete Title II activities and start Title III activities.

2411

1. Title and Location of Project: Defense Waste Processing Facility Saltstone Vault #2, Savannah River Site, Aiken, South Carolina

2a. Project No.: a/
2b. Operating Expense Funded

9. Details of Cost Estimate a/

	Item Cost	Total Cost
a. Design and Management costs		$ 2,020
1. Engineering design and inspection at approximately 9 percent of construction costs, Item c	$ 750	
2. Construction Management Costs	460	
3. Project management at approximately 10 percent of construction costs (item c)	810	
b. Land and land rights		0
c. Construction costs		8,500
1. Improvements to land	471	
2. Buildings	0	
3. Other structures	8,029	
4. Utilities	0	
5. Special facilities	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$10,520
h. Contingencies at approximately 14 percent of above costs		1,480
i. Total line item cost (section 12, a. 1. (a)		$12,000
j. Non-Federal contribution		0
Net Federal total estimated cost (TEC)		$12,000

The DOE escalation rates (% per year) used for this estimate are as follows:

Fiscal Year	FY 1997	FY 1998	FY 1999	FY 2000
Escalation	3.5	3.5	3.3	3.3

The above estimate includes $783,494 for escalation encompassing the three year deferral of this project.

a/ Estimate is based on completed Title II estimate.

1. Title and Location of Project: Defense Waste Processing Facility Saltstone Vault #2, Savannah River Site, Aiken, South Carolina

2a. Project No.: a/
2b. Operating Expense Funded

10. Method of Performance

Construction and procurement will be accomplished utilizing fixed-price subcontracts awarded on the basis of competitive bidding. Design and inspection shall be performed by the Management and Operating (M&E) contractor.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 903	$ 0	$ 0	$ 0	$11,097	$ 12,000
(b) Operating Expense Funded equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$ 903	$ 0	$ 0	$ 0	$11,097	$ 12,000
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	717	0	0	0	0	717
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	0	0	0	0
(e) Other project-related costs	0	0	0	0	108	108
Total other project costs	$ 717	$ 0	$ 0	$ 0	$ 108	$ 825
Total project costs	$ 2,283	$ 0	$ 0	$ 0	$11,205	$ 12,825
(f) Non-federal contribution	0	0	0	0	0	0
Net Federal total project cost (TPC)	$ 2,283	$ 0	$ 0	$ 0	$11,205	$ 12,825

2413

1. Title and Location of Project: Defense Waste Processing Facility Saltstone Vault #2, Savannah River Site, Aiken, South Carolina

2a. Project No.: a/
2b. Operating Expense Funded

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--1 year)	$ 5
(1) Facility operating costs	5
(2) Facility maintenance and repair costs	0
(3) Programmatic operating expenses directly related to the facility	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs	0
(7) Other costs	$ 10
Total related annual funding	

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1. Title and Location of Project: Defense Waste Processing Facility Saltstone Vault #2, Savannah River Site, Aiken, South Carolina	2a. Project No.: a/ 2b. Operating Expense Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project cost
   (1) Total facility costs
      (a) Line item--Narrative not required.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--No inventories needed for the proposed facilities.
      (e) Non-Federal Contribution--None.

   (2) Other project costs
      (a) R&D necessary to complete construction--None
      (b) Conceptual design--Includes pre-authorization cost, soil investigation and vault layout ($717,000).
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--None.
      (e) Other project related costs--Possible turnover activities resulting from final walkdown ($108,000).
      (f) Non-Federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--FTE 0, $5,000.
   (2) Facility maintenance and repair costs--FTE 0.1, $5,000.
   (3) Programmatic operating expenses directly related to the facility--None.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--None.
   (5) GPP or other construction related to programmatic effort--None.
   (6) Utility costs--None.
   (7) Other costs--None.

1. Title and Location of Project: Defense Waste Processing Facility Saltstone Vault #2, Savannah River Site, Aiken, South Carolina	2a. Project No.: a/ 2b. Operating Expense Funded

13. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988.

14. Supplementary Project Data for Facility Utilization

The requirements for supplementary project data for facility utilization are not applicable to this project.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Mixed Waste Management Facility, Lawrence Livermore National Laboratory, Livermore, California

2a. Project No.: a/
2b. Operating Expense Funded

3a. Date A-E Work Initiated: 3rd Qtr. FY 1994

3b. A-E Work (Titles I & II) Duration: 25 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- N/A
Total Project Cost (TPC) -- $61,920

4a. Date Physical Construction Starts: 3rd Qtr. FY 1996

4b. Date Phase I Construction Ends: 3rd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- N/A
TPC -- $59,700 d/f/

7. Financial schedule (Federal Funds): b/c/

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1993	$ 1,550		$ 1,550	$ 483
1994	9,730		9,730	7,868
1995	5,656 e/		5,656	8,085
1996	11,311		11,311	7,529
1997	2,000		2,000	6,000
1998	15,635		15,635	15,728
1999	13,818		13,818	14,007

a/ It should be noted that this project is justified as an operating expense funded construction project. It has been reformatted only to comply with the revised DOE Order 5100.3. It is not intended to be funded as a capital line item.
b/ Phase I includes funding only initial technologies to be demonstrated.
c/ Cost based on Conceptual Design Report.
d/ Phase I final cost will be determined upon completion of Systems Definitive Design. Cost for Phase I will include design, fabrication, installation, Operation Readiness, equipment procurement, and project management.
e/ Reflects FY 1995 rescission of $2,000,000.
f/ TPC reduction reflects cost savings as the result of co-locating DWTF and MWMF. Originally, MWMF was to be housed in an upgraded, existing facility in another area of the laboratory.

1. Title and Location of Project: Mixed Waste Management Facility, Lawrence Livermore National Laboratory, Livermore, California

2a. Project No.: a/

2b. Operating Expense Funded

8. Project Description, Justification and Scope a/

This project is an operating expense funded construction project that includes Capital Equipment Not Related to Construction (CENTRC) funds for fabrication of capital equipment. It was reformatted only to comply with DOE Order 5100.3. It is not intended to be funded as a construction line item.

The scope of the Mixed Waste Management Facility (MWMF) is to design, construct, and startup a pilot-scale facility to demonstrate and evaluate the operation and integration of technologies for the treatment of low-level, organic, mixed waste; to demonstrate alternatives to the use of incineration; to demonstrate equivalency with applicable federal and state incineration-based standards; and to meet other Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs), such as Universal Treatment Standards (UTS). The testing and evaluation will be performed in the MWMF/LWPB (Liquid Waste Processing Building). The building is currently undergoing Title I/II design activities under a separate line item, the Decontamination and Waste Treatment Facility (DWTF), 86-D-103. The separate line item will provide an operational infrastructure for the demonstration. Once the technologies are successfully demonstrated and sufficient data obtained, an appropriate permit application will be filed and the system will be transitioned for treatment of applicable LLNL waste streams (transitioning to treatment may require operational or physical modifications to equipment or relocation as required by the appropriate permitting plan to be determined at that time). This treatment is part of the LLNL Proposed Site Treatment Plan, in compliance with the Federal Facility Compliance Act (FFCA).

The primary treatment technologies selected for initial operations include Molten Salt Oxidation (MSO) and Mediated Electrochemical Oxidation (MEO). In addition to the primary process systems, the integrated facility will include ancillary systems, such as salt recycle for MSO and acid recovery for MEO, as well as process support systems (including receiving and shipping, feed preparation, final forms, offgas, water treatment, analytical services, and supervisory and local instrumentation and control).

a/ Due to higher priority activities, the scope, schedule and cost of the project are currently being evaluated and are not reflected in this data sheet.

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1. Title and Location of Project: Mixed Waste Management Facility, Lawrence Livermore National Laboratory, Livermore, California	2a. Project No.: g/ 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The MWMF Pilot Plant will support national DOE objectives, as well as the Waste Management objectives of the DOE-Oakland Operations Office and the laboratory.

- The MWMF is part of the response of the Laboratory and DOE to the FFCA, since the technologies evaluated in MWMF - after successfully demonstrated, permitted, and transitioned for treatment - will be used to treat applicable waste streams at LLNL and will be made available for deployment at other DOE, state and commercial sites.

- MWMF is being designed as an integrated demonstration facility, whereby the full treatment train for a given process technology is evaluated, optimized, and tested. This full treatment train involves not only the primary process system, but also includes ancillary systems (such as salt recycle for MSO and acid recovery for MEO) and process support systems (receiving, characterization, feed preparation, offgas, waste treatment, final forms, and instrumentation and control). In addition, NEPA, permitting, and other regulatory issues will be addressed. Industrial participation wherever practical is also a key objective, to provide commercial suppliers for specialized components.

- MWMF is designed as a pilot-scale facility, whereby engineering issues (such as lifetime, throughput, reliability, life-cycle costs, etc.) are addressed that are necessary for successful full-scale and/or commercial deployment of the technology.

- MWMF is being designed as a national testbed for evaluating mature, advanced technologies for treating low-level organic mixed wastes. After demonstration of the initial process technologies, new technologies will be selected for demonstration in MWMF, leading to full-scale deployment at other appropriate DOE and commercial sites. MWMF is also being designed with sufficient adaptability to evaluate a variety of waste streams of interest to DOE or commercial sites, to allow process optimization, and the introduction of new technologies into the treatment train.

- Engineering design data will be provided to the DOE community to feed into the design and construction of prototype or full-scale facilities. These data will include necessary engineering information related to plant design, NEPA and permitting guidance, operating data, applicable waste streams, systems analysis, process modeling, and technology transfer.

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1. Title and Location of Project: Mixed Waste Management Facility, Lawrence Livermore National Laboratory, Livermore, California	2a. Project No.: a/ 2b. Operating Expense Funded

9. Details of Cost Estimate a/b/

The costs shown are based on planned expenditures through 4th Quarter FY 1999. The current estimates are based on an initial functional design criteria which will be verified by an independent cost review. The following types of costs are associated with MWMF: system definitive design, conceptual design, equipment, fabrication, assembly, installation/checkout, NEPA/Permits, Safety Analysis, Operational Readiness Review, and project management. Cost for follow-on technology phases are not included.

	Item Cost	Total Cost
Phase I:		
Project Integration		$ 7,700
Criteria and Conceptual Design		2,200
Technology Development		36,200
Feed Preparation System	$ 8,800	
Waste Processing System	17,300	
Process Support System	10,100	
Project Support		4,400
Quality Assurance	300	
Public Participation	400	
Program Support	3,700	
Activation		5,200
NEPA/CEQA/Permit		1,600
Safety Analysis Report		400
Operational Readiness		2,000
Total Project Cost		$ 59,700
Phase II:		
TBD		TBD

a/ All costs for CENTRC-funded systems will be capitalized upon project completion.
b/ Due to higher priority activities, the scope, schedule and cost of the project are currently being evaluated and are not reflected in this data sheet.

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1. Title and Location of Project: Mixed Waste Management Facility, Lawrence Livermore National Laboratory, Livermore, California

2a. Project No.: a/
2b. Operating Expense Funded

10. Method of Performance

(a) Schedule of Planned Activities a/b/

Activity	Start	Complete
Criteria and Conceptual Design	3rd Qtr.FY 1993	3rd Qtr. FY 1994
System Design	4th Qtr.FY 1994	3rd Qtr. FY 1996
System Fabrication	4th Qtr.FY 1996	3rd Qtr. FY 1997
Operational Readiness (Initial Technology)	3rd Qtr.FY 1997	4th Qtr. FY 1998

(b) Management and Contracting

The project is managed for the Department by an onsite Project Manager, which reports directly to DOE-Oakland. The Project Manager's Office is responsible for the day-to-day management and decision making. Lawrence Livermore National Laboratory is responsible for executing the designs, fabrications, installation, and activities of the project. The project will be managed in accordance with DOE Order 4700.1 and other applicable DOE Orders.

System design will be performed by LLNL personnel. To the extent feasible, construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding. The majority of the work will be performed by LLNL forces.

(c) Current Year Achievements (FY 1996)

Complete Title II design, continue permitting activities, initiate long-lead procurement and start fabrication.

a/ Note that schedule has changed. The operational readiness will occur in FY 1998.
b/ Due to higher priority activities, the scope, schedule and cost of the project are currently being evaluated and are not reflected in this data sheet.

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1. Title and Location of Project: Mixed Waste Management Facility, Lawrence Livermore National Laboratory, Livermore, California

2a. Project No.: a/
2b. Operating Expense Funded

11. Schedule of Project Funding and Other Related Funding Requirements

PHASE I:

Project Budget	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	Total a/
1. Operating Expenses	483	3,868	3,200	1,400	1,500	6,000	6,000	27,451
2. Capital Equipment	0	4,000	4,885	10,130	4,500	9,728	4,006	37,249
TOTAL	483	7,868	8,085	7,529	6,000	15,728	14,007	59,700

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--Narrative not required.
      (b) PE&D--None.
      (c) Expense-funded equipment--Includes CENRTC-funded project costs.
      (d) Inventories--None.
      (e) Non-Federal Contribution--None.
   (2) Other project costs
      (a) R&D necessary to complete construction--Engineering development costs included in equipment costs, since it supports design activity.
      (b) Conceptual design--Total direct costs for Conceptual Design Report and associated activities; does not include management and support activities.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--Contained in expense-funded project costs.
      (e) Other project-related costs--None.
      (f) Non-federal contribution--None.

a/ Costs are based on the Conceptual Design Report.

1. Title and Location of Project: Mixed Waste Management Facility, Lawrence Livermore National Laboratory, Livermore, California	2a. Project No.: a/ 2b. Operating Expense Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding
(1) Facility operating costs--Based on CDR estimate for operating staff and management and support staff.
(2) Facility maintenance and repair costs--Included in (1).
(3) Programmatic operating expenses directly related to the facility--Included in (1).
(4) Capital equipment not related to construction but related to the programmatic effort in the facility--Included in (1).
(5) GPP or other construction related to the programmatic effort in the facility--None.
(6) Utility costs--Included in (1).
(7) Other costs--None.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin.)

OFFICE OF WASTE MANAGEMENT
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Tank 241-C-106 Waste Sluicing, Richland, Washington

2a. Project No.: TANKSLUICING a/
2b. Operating Expense Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 3rd Qtr. FY 1993 b/

3b. A-E Work (Titles I & II) Duration: 21 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $47,300
Total Project Cost (TPC) -- $59,300

4a. Date Physical Construction Starts: 2nd Qtr. FY 1995

4b. Date Construction Ends: 1st Qtr. FY 1997

6. Current Cost Estimate:
TEC -- $47,212
TPC -- $59,212

7. Financial schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1994	$16,700		$16,700	$16,700
1995	20,367		20,367	20,367
1996	10,033		10,033	10,033
1997	112		112	112

a/ It should be noted that this project is justified as an operating expense funded construction project. It has been reformatted only to comply with the revised DOE Order 5100.3. It is not intended to be funded as a capital line item.
b/ Construction schedule has returned to its original date due to delay in obtaining Funding of No Significant Impacts (FONSI) approval.

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1. Title and Location of Project: Tank 241-C-106 Waste Sluicing, Richland, Washington	2a. Project No.: TANKSLUICING a/ 2b. Operating Expense Funded

8. Project Description, Justification and Scope

This project will provide the systems, facilities, and utility upgrades required to retrieve the high-heat waste from single-shell tank (SST) 241-C-106. This project is operating expense funded because the expected operational duration is less than one year. Any equipment found to have residual value at the end of the retrieval demonstration will be capitalized at that time.

Tank 241-C-106 has been identified as a high-heat safety tank in accordance with Public Law 101-510 (Wyden Bill). This tank is fourth on the Priority I Safety Issues List at the Hanford Site, and has been selected for the demonstration of SST retrieval technology for Tri-Party Milestone M-45-03A. Tank-to-tank sluicing has been selected as the method to remove the high-heat waste from tank 241-C-106 and to satisfy retrieval requirements under the M-45-03A Milestone. The process selected for tank 241-C-106 is similar to the process used to retrieve waste from the A and AX Tank Farms in the 1970's. Once sufficient heat-generating sludge is removed, cooling water additions can cease.

The waste retrieval actions will comply with all applicable laws, regulations, and U.S. Department of Energy (DOE) Orders; and allow follow-on site closure actions.

The fiscal year 1997 funds will be used to complete project closeout activities.

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1. Title and Location of Project: Tank 241-C-106 Waste Sluicing, Richland, Washington

2a. Project No.: TANKSLUICING a/
2b. Operating Expense Funded

9. Details of Cost Estimate a/b/

	Item Cost	Total Cost
a. Design and Management costs		$ 18,812
1. Engineering design and inspection at approximately 61 percent of construction costs, Item c (Design, Drawings, and Specifications: $10,000)	$ 14,500	
2. Construction Management Costs	1,450	
3. Project management at 12 percent of construction costs (item c)	2,862	
b. Land and land rights		0
c. Construction costs		23,640
1. improvements to land	160	
2. Buildings	230	
3. Other structures	1,620	
4. Utilities	1,120	
5. Special facilities	20,510	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 42,452
h. Contingencies at approximately 11 percent of above costs		4,760
i. Total line item cost (section 12, a. 1. (a)		$ 47,212
j. Non-Federal contribution		0
k. Net Federal total estimated cost (TEC)		$ 47,212

10. Method of Performance

Design and inspection shall be performed under a contract with the onsite engineer/contractor. Construction and procurement will be accomplished using a combination of onsite construction forces and fixed-price contracts awarded on the basis of competitive bidding.

a/ This estimate is based on the latest approved change requests to the project 40% design cost.
b/ All costs include escalation based on the "Material and Labor Escalation Study," prepared by Kaiser Engineers Hanford, dated February 1993. Engineering: FY 1993-5.0%; FY 1994-4.5%; FY 1995-4.8%; FY 1996-4.9%; construction: FY 1993-3.4%; FY 1994-3.7%; FY 1995-3.8%; FY 1996-3.8%.

1. Title and Location of Project: Tank 241-C-106 Waste Sluicing, Richland, Washington

2a. Project No.: TANKSLUICING a/
2b. Operating Expense Funded

11. Schedule of Project Funding and Other Related Funding Requirements a/

	Previous Years	FY 1995	FY 1996	FY 1997	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 10)	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Operating Expense Funded equipment	16,700	20,367	10,033	112	0	47,212
(c) CENRTC	2,406	494	0	0	0	2,900
(d) Inventories	0	0	0	0	0	0
Total facility costs (Federal and Non-Federal)	$19,106	$20,861	$10,033	$ 200	$ 0	$50,112
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	0	0	0	0	0	0
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	110	0	0	0	0	110
(e) Other project-related costs	2,390	3,900	2,700	0	0	8,990
Total other project costs	$ 2,500	$ 3,900	$ 2,700	$ 0	$ 0	$ 9,100
Total project costs	$21,606	$24,761	$12,733	$ 200	$ 0	$59,212
(f) Non-federal contribution	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$21,606	$24,761	$12,733	$ 200	$ 0	$59,212

b. Related annual funding (estimated life of project--less than one year)	
(1) Facility operating costs	$ 3,600
(2) Facility maintenance and repair costs	0
(3) Programmatic operating expenses directly related to the facility	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs	0
(7) Other costs	3,600
Total related annual funding	$ 7,200

a/ This estimate is based on the latest approved change requests to the project 40 percent design cost.

1. Title and Location of Project: Tank 241-C-106 Waste Sluicing, Richland, Washington	2a. Project No.: TANKSLUICING a/ 2b. Operating Expense Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--None.
      (b) Expense-funded equipment--Funded one-step definitive design, process and construction: $47,212,000; this amount is adequate to cover one-step definitive design, process, inspection, procurement, construction and acceptance testing of the system.
      (c) CENTRC--$2,900,000; covers upgrades to existing operating facilities.
      (d) Inventories--None.
      (e) Non-Federal contribution--None.

   (2) Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--No conceptual design will be performed for this project.
      (c) Decontamination & decommissioning (D&D)--Decontamination and decommissioning following completion of retrieval operations will be performed and funded as a life-cycle cost item.
      (d) NEPA documentation costs--The National Environmental Policy Act (NEPA) documentation will cost approximately $110,000.
      (e) Other project-related costs--Safety documentation and permitting requirements, and startup activities will be performed at a current estimated cost of $8,990,000.
      (f) Non-federal contribution--None.

b. Related annual funding
   (1) Facility operating costs--$3,600,000; these costs include $3,400,000 for retrieval of the waste and $200,000 for operator training.
   (2) Facility maintenance and repair costs--None.
   (3) Programmatic operating expenses directly related to the facility: None.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility: None.
   (5) GPP or other construction related to the programmatic effort in the facility--None.
   (6) Utility costs--None.
   (7) Other costs--These costs are included in item 13.e(2)(f) above.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT

(Tabular dollars in thousands, narrative in whole dollars)

TECHNOLOGY DEVELOPMENT

PROGRAM MISSION

The mission of the Technology Development Program is to provide new or improved technologies to reduce risks and the cost of cleanup at the Department of Energy (DOE) facilities and contaminated areas that have resulted from decades of weapons production. In some cases, there are no known methods by which to cleanup contamination, and the methods that do exist are often expensive or ineffective. To this end, the Technology Development Program conducts an aggressive national research and development program that addresses five major problem (or focus) areas identified by the Environmental Management (EM) program in FY 1994. This Technology Development budget is structured around these focus areas:

- Mixed Waste Characterization, Treatment, and Disposal to address the large inventory of mixed, low-level, and transuranic waste;
- Radioactive Tank Waste Remediation to address the hundreds of large storage tanks containing over 100 million gallons of radioactive waste;
- Contaminant Plume Containment and Remediation to address the uncontained hazardous and radioactive contaminants in soil and groundwater;
- Landfill Stabilization to address the migration and remediation challenges posed by numerous DOE landfills; and
- Decontamination and Decommissioning, to transition, decommission, deactivate and dispose of the aging and contaminated DOE weapons complex facilities.

In addition to the above focus areas, the Technology Development Program also conducts the following crosscutting and supporting programs to support the focus areas:

- Efficient Separations and Processing to develop technologies for extracting radionuclides and reduce waste volume;
- Characterization, Monitoring and Sensors to develop systems to accurately and safely characterize, monitor and analyze wastes;
- Robotics to reduce worker risk with remotely controlled robotic systems;

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PROGRAM MISSION - TECHNOLOGY DEVELOPMENT (cont'd)

- Technology Integration to establish processes to provide for early user, stakeholder, regulator participation and technology availability for use in cleaning up the DOE complex; and

- Industry and University Programs to ensure private industry and university participation in developing and implementing innovative technologies through Program Research and Development Agreements (PRDAs) and Research Opportunity Announcements (ROAs).

Of the seven recognized technology development stages: Basic Research, Applied Research, Exploratory Development, Advanced Development, Engineering Development, Demonstration and Implementation, Technology Development focus area efforts build from Applied Research through Demonstration to achieve implementation in partnership with private industry of high-payoff environmental technologies. Uncertainties are inherent in any research program, and the allocations of the funding requested in this document represent the best estimates at the time this budget was formulated. It is possible that, as events occur, priorities could change, and it may be necessary to redirect funds within the technology development budget areas.

The GOAL of the Technology Development Program is to focus the technology development activities on DOE's major environmental management issues while involving the best talent in DOE and national (public and private) science and engineering communities.

The OBJECTIVES associated with this goal are:

- To reduce cleanup costs
- To reduce risks
- To solve cleanup problems that currently have no solutions

In response to DOE's commitment to improve management practices and to adopt performance-based budgeting, the Technology Development Program tracks

PERFORMANCE MEASURES in these areas:

- Number of improved technologies/systems (bench, pilot, or full scale) demonstrations in the five focus areas and crosscutting programs;
- Number of improved technologies/systems available for transfer in the five focus areas and crosscutting programs;
- Percentage of technology development budget directed to the private sector to enhance ultimate commercial availability of technologies for site cleanup and waste treatment selection.

Technology Development Performance Measures Summary

FY 1997 PERFORMANCE MEASURES						
Performance Measures	Mixed Waste Target	Tanks Target	Plumes Target	Landfills Target	Facility D&D Target	Total Target
50-01 Number of Improved Technologies/Systems Demonstrated	14	20	28	27	13	102
50-02 Number of Improved Technologies/Systems Available for Transfer	6	6	10	8	2	32
50-04 Percentage of Technology Budget Directed to the Private-sector	50% $35.6M	35% $16.4M	50% $19.7M	50% $16.9M	50% $9.8M	47% $98.4M

Note: Program Support is not included in the values shown above

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

TECHNOLOGY DEVELOPMENT

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
TREATMENT and REMEDIATION TECHNOLOGY SYSTEMS					
Mixed Waste	$ 29,629	$ 56,846	$ -5,694	$ 51,152	$ 56,290
Radioactive Tank Waste Remediation	23,094	26,603	+3,849	30,452	37,073
Contaminant Plume Containment	32,674	50,498	-19,756	30,742	31,017
Landfill Stabilization	31,048	39,671	-12,605	27,066	26,818
Decontamination and Decommissioning	12,874	16,615	-1,921	14,694	15,675
Science Program	0	50,000	-50,000	0	0
Subtotal, Treatment & Remediation Tech. Systems	$129,319	$240,233	$-86,127	$154,106	$166,873
CROSSCUTTING PROGRAMS					
Characterization, Monitoring, & Sensors	19,505	24,456	-9,854	14,602	15,553
Efficient Separations & Processing	14,716	16,522	-3,837	12,685	12,747
Robotics	22,279	22,028	-7,107	14,921	15,883
Electrometallurgical R&D	0	25,000	-25,000 1/	0 1/	0 1/
Innovative Technologies	0	10,454	-10,454	0	0
Pollution Prevention	0	1,400	-1,400	0	0
Subtotal, Crosscutting Programs	$ 56,500	$ 99,860	$-57,652	$42,208	$ 44,183

1/ The $25,000,000, which was appropriated in FY 1996 in the Technology Development Decision Unit under the Defense Environmental Restoration and Waste Management Appropriation, and the FY 1997 request amount of $25,000,000 for the Electrometallurgical R&D program are contained in the Nuclear Energy Decision Unit under the Energy Supply Research and Development Appropriation.

TECHNOLOGY DEVELOPMENT - PROGRAM FUNDING PROFILE (cont'd)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
INDUSTRY and UNIVERSITY PROGRAMS					
Private Industry Programs	47,651	38,457	+8,443	46,900	40,599
University Programs	12,165	0	+10,100	10,100	17,813
Small Business Innovative Research Program	0	0	+4,337	4,337	3,742
FAC/DOIT	1,320	0	0	0	0
Subtotal, Industry and University Programs	$61,136	$ 38,457	$+22,880	$61,337	$ 62,154
TECHNOLOGY INTEGRATION					
Domestic	8,459	11,238	+5,789	17,027	18,454
International Technology Exchange	4,437	4,667	-1,099	3,568	3,293
Subtotal, Technology Integration	$12,896	$ 15,905	$ +4,690	$20,595	$ 21,747
PROGRAM MANAGEMENT					
Program Support	17,670	31,056	-11,421	19,635	8,814
Program Direction	0	14,999	-14,999	0	0
Subtotal, Program Management	$ 17,670	$ 46,055	$-26,420	$ 19,635	$ 8,814
TOTAL, TECHNOLOGY DEVELOPMENT	$277,521 3/	$440,510	$-142,629 4/	$ 297,881 2/ 3/	$303,771 2/ 3/

2/ Final distribution of funds by program in FY 1996 and FY 1997 could change based upon changing priorities, final receipt, review and selections of technical proposals.

3/ Includes capital equipment estimates of: $17,628,000 in FY 1995; $14,013,000 in FY 1996; and $18,900,000 in FY 1997.

4/ Includes $-38,016,000 taken as a new Budget Authority reduction for use of prior year balances, as well as other comparability adjustments.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

TECHNOLOGY DEVELOPMENT

PROGRAM FUNDING BY SITE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
ALBUQUERQUE OPERATIONS OFFICE					
Los Alamos National Laboratory (NM)	$ 9,094	$ 0	$ +6,891	$ 6,891	$ 6,750
Sandia National Laboratory (NM)	17,665	0	+17,500	17,500	9,035
Sandia National Laboratory (Ca)	1,703	0	+2,000	2,000	427
Albuquerque Operations Office (NM)	827	0	+632	632	4,410
Grand Junction Project Office (CO)	1,051	0	+100	100	0
Subtotal, Albuquerque	30,340	0	+27,123	27,123	20,622
CHICAGO OPERATIONS OFFICE					
Ames Laboratory (IA)	4,610	0	+2,510	2,510	1,975
Argonne National Laboratory (West) (ID)	9,920	0	+9,289	9,289	5,403
Brookhaven National Laboratory (NY)	1,764	0	+1,900	1,900	530
Chicago Operations Office (IL)	6,123	0	+9,216	9,216	9,082
Subtotal, Chicago	22,417	0	+22,915	22,915	16,990
IDAHO OPERATIONS OFFICE					
Idaho National Engineering Laboratory (ID)	29,237	0	+21,663	21,663	13,615
Idaho Operations Office (ID)	8,570	0	+21,020	21,020	51,742
Subtotal, Idaho	37,807	0	+42,683	42,683	65,357
MORGANTOWN ENERGY TECH. CENTER					
Morgantown Energy Technology Center (WV)	49,024	0	+76,368	76,368	73,742
NEVADA OPERATIONS OFFICE					
Nevada Operations Office (NV)	2,841	0	+2,682	2,682	1,791

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PROGRAM FUNDING BY SITE - TECHNOLOGY DEVELOPMENT (cont'd)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
OAK RIDGE OPERATIONS OFFICE					
Oak Ridge National Lab (TN)	26,194	0	+22,620	22,620	12,295
Oak Ridge Inst. for Science & Education (TN)	141	0	0	0	0
Oak Ridge Operations Office (TN)	982	0	+4,946	4,946	8,773
Subtotal, Oak Ridge	27,317	0	+27,566	27,566	21,068
OAKLAND OPERATIONS OFFICE					
Energy Technology Engineering Center (CA)	1,475	0	0	0	0
Lawrence Livermore National Lab. (CA)	5,583	0	+3,550	3,550	1,690
Lawrence Berkeley Laboratory (CA)	2,410	0	+2,012	2,012	1,900
Oakland Operations Office (CA)	802	0	600	600	1,074
Subtotal, Oakland	10,270	0	+6,162	6,162	4,664
OHIO FIELD OFFICE					
Fernald Environmental Mgmt. Project (OH)	2,378	0	+2,600	2,600	4,370
Ohio Operations Office (OH)	50	0	+228	228	1,775
Subtotal, Ohio	2,428	0	+2,828	2,828	6,145
PITTSBURGH ENERGY TECH. CENTER					
Pittsburgh Energy Technology Center (PA)	9,925	0	+13,815	13,815	10,930
RICHLAND OPERATIONS OFFICE					
Pacific Northwest Laboratory (WA)	22,628	0	+20,924	20,924	9,978
Westinghouse Hanford	9,094	0	+6,340	6,340	800
Bechtel	0	0	0	0	750
Richland Operations Office (WA)	4,466	0	+2,632	2,632	25,655
Subtotal, Richland	36,188	0	+29,896	29,896	37,183
ROCKY FLATS OFFICE					
Rocky Flats Plant (CO)	5,416	0	+2,495	2,495	1,539

PROGRAM FUNDING BY SITE - TECHNOLOGY DEVELOPMENT (cont'd)

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
SAVANNAH RIVER OPERATIONS OFFICE					
Savannah River Site (SC)	11,096	0	+23,797	23,797	17,135
Savannah River Operations Office (SC)	6,610	0	+5,591	5,591	9,440 3/
Subtotal, Savannah River	17,706	0	+29,388	29,388	26,575
HEADQUARTERS					
Headquarters	25,842	440,510 1/	-426,550 1/	13,960 1/	17,165 1/
TOTAL, TECHNOLOGY DEVELOPMENT	$277,521	$440,510	$-142,629 4/	$297,881 2/	$303,771 2/

1/ The $25,000,000, which was appropriated in FY 1996 in the Technology Development Decision Unit under the Defense Environmental Restoration and Waste Management Appropriation, and the FY 1997 request amount of $25,000,000 for the Electrometallurgical R&D program are contained in the Nuclear Energy Decision Unit under the Energy Supply Research and Development Appropriation.

2/ Final distribution of funds by site in FY 1996 and FY 1997 could change based upon changing priorities, final receipt, review and selections of technical proposals.

3/ Increase in funding over FY 1996 reflects funds held at field office for new starts in Focus Areas; funds will be distributed early in FY 1997 based on competitive solicitation among laboratories and industry.

4/ Includes $-38,016,000 taken as a new Budget Authority reduction for use of prior year balances, as well as other comparability adjustments.

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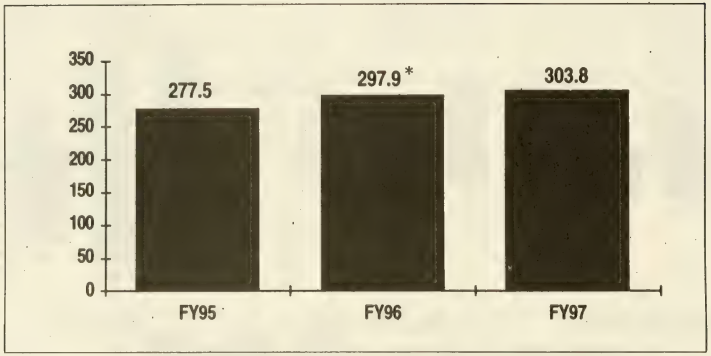
Technology Development

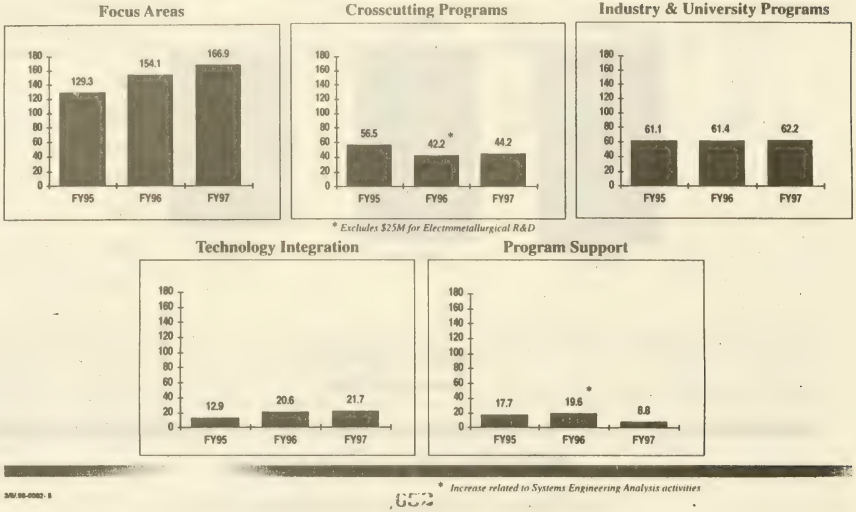
Budget Trends
(Dollars in Millions)



* Excludes $25M for Electrometallurgical R&D program managed with the DOE Office of Nuclear Energy.

Technology Development

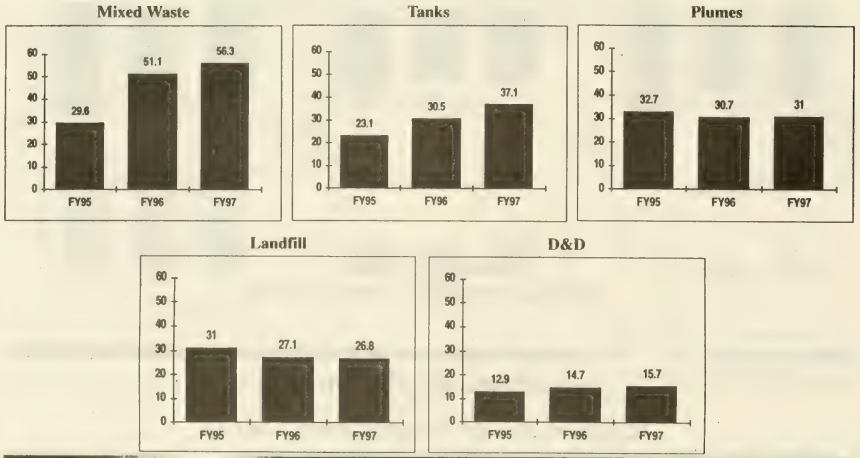
Budget Trends - Summary (Dollars in Millions)



FY 1997 CONGRESSIONAL BUDGET REQUEST

Technology Development

Budget Trends - Focus Areas (Dollars in Millions)



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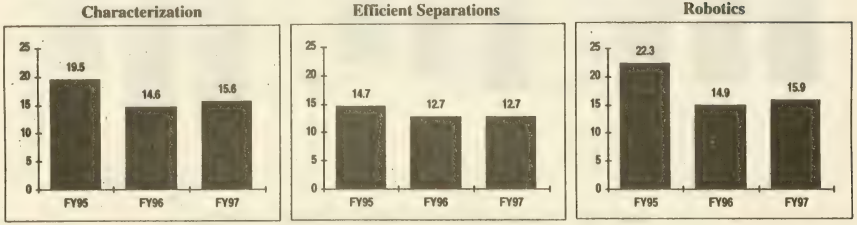
Technology Development

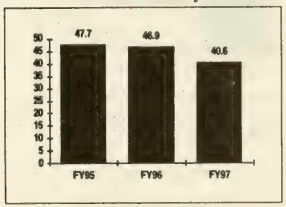
Budget Trends - Crosscutting Programs
(Dollars in Millions)



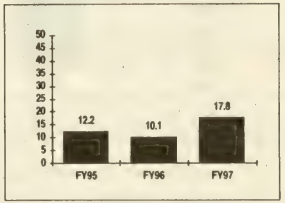
Technology Development

Budget Trends - Industry & University Programs
(Dollars in Millions)

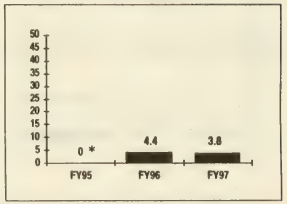
Private Industry



University Programs



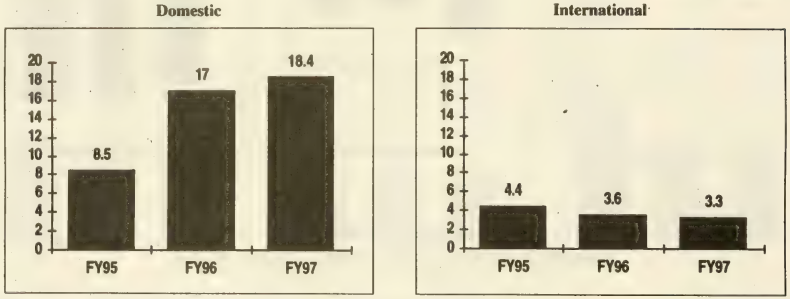
SBIR Program



* Funding of $3.9M transferred to DOE Office of Energy Research for administration of SBIR funding and grants.

Technology Development

Budget Trends - Technology Integration
(Dollars in Millions)



TECHNOLOGY DEVELOPMENT

PROGRAM PERFORMANCE SUMMARY

Mixed Waste Characterization, Treatment, and Disposal

- Provide acceptable treatment systems, capable of treating DOE's mixed waste, which have been developed in partnership with users and with continual participation of stakeholders, tribal governments, and regulators.
- Identify deficiencies in the critical path of the treatment systems specified in the Site Treatment Plans (STP) that was required under the Federal Facility Compliance Act and develop technologies to fill these gaps enabling DOE to meet its commitment to the regulators and stakeholders to treat and dispose mixed wastes.
- Enable the operation of complete treatment systems by developing subsystem technologies and providing bounding operation and performance data in the following areas:

  - primary thermal (Plasma, Joule heating melters, Molten Metal, Vortex, Microwave Melter, and Russian cold wall melter) and non-thermal (micro/macro polymer encapsulation, catalytic oxidation, supercritical CO2 extraction) waste destruction and stabilization technologies that can accept wide range (targeting 90 percent) of mixed waste;

  - close loop and continuous on-line off gas monitoring and treatment for organics, metals, and radionuclides;

  - ancillary technologies such as mercury stabilization and removal, materials sizing and handling, non-intrusive waste drum characterization, waste form performance etc., radionuclide partitioning, refractory performance, salt/ash stabilization; and

  - integrate the subsystem technologies to provide complete treatment systems.

- Make available technologies to drive competition in support of mixed waste treatment performance based contracts.
- Eliminate waste streams through demonstration/treatability studies where possible.
- Work with regulators and stakeholders (e.g. National Technical Workgroup on Mixed Waste and Western Governors' Association) to gain ultimate acceptance of the treatment technologies.
- Transfer technologies to industry for commercial use and application to DOE sites, identify opportunities to retrofit existing projects with more effective technologies.
- Accept and demonstrate technologies from the Crosscutting, Private Industry, and University Programs.

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Radioactive Tank Waste Remediation

- Manage a user-driven, technology development program that results in the closure of radioactive waste tanks while minimizing life-cycle costs.
- Transfer to user, systems to improve the accuracy, safety, and speed of tank waste analysis in hot cells at Hanford.
- Deploy technologies to characterize tank waste in situ, inspect tanks, and monitor tank leaks to support safety analyses and retrieval operations.
- Demonstrate and transfer, three Light Duty Utility Arm systems for the deployment of characterization and retrieval technologies in Hanford, Oak Ridge and Idaho tanks.
- Deploy and transfer, high pressure, water-jet technology to retrieve both bulk waste and tank heels from Oak Ridge, Idaho, and Savannah River.
- Implement and transfer technology to separate solids and liquids to both reduce High Level Waste (HLW) volume and to improve efficiency of waste processing.
- Develop and transfer radionuclide (cesium, strontium, and technetium) extraction technologies to reduce the volume of HLW requiring vitrification.
- Commence the Hanford Tank Farm Initiative. Develop and deploy characterization and retrieval technologies that will close two single-shell tanks in four years.
- Accept and demonstrate technologies from the Crosscutting, Private Industry and University Programs.

Contaminant Plume Containment

- Conduct full-scale demonstration and implement reactive barrier system at Oak Ridge Y-12 and Hanford N-Springs for in situ treatment of heavy metal contaminated groundwater.
- Adaptation and implementation of solution mining technology for enhanced uranium recovery from groundwater at Fernald resulting in significant cost savings.
- Demonstrate the capability to treat dense non-aqueous phase liquid (DNAPL)-contaminated soil and groundwater in situ and control plume migration using recirculating wells and passive treatment systems.
- Reduce site characterization costs for volatile organic compounds/DNAPLs, metals and radionuclides by 50 percent through the use of innovative tracers, geophysical, and chemical tools.
- Minimize secondary waste associated with DNAPL remediation through the development of separation, recovery, recycling, and destruction technologies.
- Facilitate the acceptance, approval, transfer, commercialization, and implementation of Contaminant Plume Containment technologies and systems, including applicable technologies from the crosscutting, private industry, and university programs.

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PROGRAM PERFORMANCE SUMMARY - TECHNOLOGY DEVELOPMENT (cont'd)

Landfill Stabilization

- Demonstrate the ability to contain/stabilize 90 percent of source terms at DOE's contaminated sites to prevent further migration by January 1997.
- Demonstrate the ability to treat 90 percent of the retrieved wastes from DOE's landfills by October 1997.
- Give equivalent priority to characterization, verification and monitoring, and retrieval technologies that directly support containment, stabilization, and treatment technology systems.
- Accept and demonstrate technologies from the Crosscutting, Private Industry and University Programs.
- Facilitate the acceptance, approval, transfer, commercialization, and implementation of Landfill Stabilization technologies and systems.

Decontamination and Decommissioning

- Demonstrate improved technologies and systems to solve customer identified needs to decontaminate and decommission DOE's radiologically contaminated surplus facilities and their contents, and to facilitate the acceptance, approval, transfer, commercialization, and implementation of these technologies.
- Emphasize demonstration and implementation of private sector technologies.
- Three large-scale demonstrations will be completed by the end of CY 1997.
- Five more large-scale demonstrations will be completed by the end of CY 1999.
- By the end of FY 2000 the Focus Area will provide technologies, systems, and methodologies to provide capabilities to D&D 90 percent of surplus facilities and materials.
- Technologies are needed to:

  - characterize and deactivate
  - survey and maintain
  - decontaminate and dismantle
  - dispose and recycle materials

- Emphasize, within near-term of 12-18 months, technologies for deactivation, surface decontamination, reuse of bulk contaminated materials, and remotely operated dismantlement systems.
- Emphasize, within mid-term of 3 years, technologies for remotely operated surveillance and maintenance systems, characterization and decontamination of bulk-contaminated materials, and facilitate adoption of free release standards for bulk-contaminated materials.
- Accept and demonstrate technologies from the Crosscutting, Private Industry and University Programs.

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TECHNOLOGY DEVELOPMENT

TREATMENT AND REMEDIATION TECHNOLOGY SYSTEMS

MIXED WASTE CHARACTERIZATION, TREATMENT, AND DISPOSAL

I. Mission Supporting Goals and Objectives

Site Treatment Plans identified 175,000 cubic meters of mixed waste in storage that includes over 1,400 mixed waste streams at 40 sites. In addition, 181,000 cubic meters of mixed low-level waste and transuranic waste is estimated to be generated over the next 5 years. The mission of this Focus Area is to provide acceptable treatment systems, capable of treating DOE's mixed waste, which have been developed in partnership with users and with continual participation of stakeholders, and tribal governments and regulators.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Mixed Waste Characterization, Treatment, and Disposal	$29,629	$51,152	$56,290	$5,138	10%

III. Performance Summary

FY 1995 Accomplishments

- Demonstrated catalytic extraction (Molten Metal) treatment technology on an actual Oak Ridge waste stream supporting the EM Office of Waste Management Privatization Initiatives.
- Completed the pilot-scale demonstrations of a primary thermal treatment system, vitrification, using non-radioactive surrogate mixed waste; designed and conducted an integrated field-scale vitrification system to be implemented at Oak Ridge in FY 1996 using actual waste.
- Demonstrated low-temperature thermal desorption technology using real waste at pilot-scale by removing organic contaminants in actual mixed waste at Rocky Flats and, thereby, allowing this site to meet the compliance agreement for organic contaminated combustibles.
- Bench-scale demonstration of Mercury removal with Potassium Iodide/Iodine (KI/I_2) leaching.
- Bench-scale demonstration of supercritical carbon dioxide extraction.

III. Performance Summary - Mixed Waste Characterization, Treatment, and Disposal (cont'd)

FY 1995 Accomplishments

- Demonstration and commercialization of polymer macro encapsulation system.
- Full scale demonstration of microwave solidification which decreases potential for worker exposure to radioactivity.
- Initiated development of a capture, test and release off-gas system with associated monitoring and process control hardware to eliminate the potential for toxic emissions from thermal processes.
- Demonstrated three prototype systems for on-line, real-time continuous monitoring of thermal system off-gas streams using actual PHP off-gas. The testing included laser spark and laser-induced breakdown spectroscopies for metals detection and the large-volume flow-through alpha detector for monitoring alpha-emitting radionuclides.
- Completed bench-scale tests of catalytic chemical oxidation (DETOX) process, a key non-thermal treatment system, and initiated pilot-scale development.
- Designed and assembled in conjunction with Russian scientists, a cold wall melter for demonstration in FY 1996.

FY 1996 Accomplishments (To Date and Planned)

- Complete site needs surveys and review Site Treatment Plans under the Federal Facility Compliance Act for the establishment of the technical baseline to determine technical deficiencies and use them to develop a needs based customer driven program.
- Complete the commercialization of the polymer macro encapsulation (non-thermal) technology at Envirocare and treat actual DOE lead contaminated mixed waste at 26 DOE sites.
- Continue primary thermal treatment technology development using radioactive waste including: Plasma Hearth Process, Vitrification Process, Cyclone Melting System, microwave, and Russian cold wall melter.
- Develop non-thermal technologies including micro polymer encapsulation, Delphi Detox, and supercritical CO2 extraction.
- Develop off-gas systems for on-line, real time, continuous monitoring of organics, metals and radionuclides including real time alpha monitor, cyclone melter system, and mercury vapor removal. Also developing off-gas close loop capability to contain and monitor toxic substances prior to its release.
- Initiate development of treatment system deficiency technologies including a non-intrusive waste container survey.
- Conduct life-cycle cost analyses to support performance based contracting.
- Work with regulators and stakeholders (National Technical Workgroup on Mixed Waste and Western Governors Association) to gain acceptance of the technologies under development.

FY 1997 Planned Accomplishments

- Complete Primary Thermal Treatment Technologies: Complete demonstration and provide performance data for plasma hearth process, thermal desorption and transportable vitrification, cold wall melter and cyclone melter ..... $ 8,900

III. Performance Summary - Mixed Waste Characterization, Treatment, and Disposal (cont'd)

FY 1997 Planned Accomplishments (cont'd)

- Non-Thermal Technologies Development: Develop non-thermal systems including, nitrate removal, cyanide destruction, trace metal removal, supercritical carbon dioxide extraction, and fission product removal; complete polymer macro encapsulation, and implement base hydrolysis at Pantex 10,800
- Off-Gas Monitoring Technologies: Develop volatile organic compound and toxic metals monitoring subsystems 3,200
- Continue Treatment System Deficiencies Development: Develop subsystems to address deficiencies in treatment systems including, mercury monitoring, stabilization and removal; non-intrusive waste characterization, material sizing, separation and handling, salt and ash stabilization, alpha monitoring, and internal drum pressure measurement; and implement Russian technologies 25,690
- System Performance Evaluation: Evaluate systems performance for radionuclide partitioning, waste form performance, HEPA and mercury filter performance, and molten product removal; develop life-cycle cost analyses to support funding decision and performance based contracting 3,200
- Public and Regulatory Integration: Integrate new technology acceptance activities with stakeholders, regulators and tribal entities including the WGA, to gain public acceptance of new technologies 4,500

Total, FY 1997 Mixed Waste, Characterization, Treatment, and Disposal $56,290

Explanation of Funding Changes FY 1996 to FY 1997

- The increase from FY 1996 is for initiation of waste form performance evaluations and development of technologies to address ancillary deficiencies identified in the Site Treatment Plan in order to provide complete treatment systems.

Major Issues

- None

RADIOACTIVE TANK WASTE REMEDIATION

I. Mission Supporting Goals and Objectives

There are over 332 storage tanks across the DOE complex containing over 100 million gallons of radioactive waste with most having significantly exceeded their life span and presenting occupational/public exposure risks. Current site baseline technologies are costly, pose significant programmatic and safety risks, and have technology gaps. The 1995 Baseline Environmental Management Report (BEMR) life-cycle cost estimate for high-level waste management was $50 billion. Current annual operating costs for high-level waste management represent 18 percent of EM's total budget. The mission of this Focus Area is to manage an integrated technology development program that results in the application of technology to safely and efficiently accomplish tank waste remediation across the DOE complex. Execution of this mission will enable tank farm closure while minimizing life-cycle cost.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Radioactive Tank Waste Remediation	$23,094	$30,452	$37,073	$6,621	22%

III. Performance Summary

FY 1995 Accomplishments

- Demonstrated (pilot-scale) Raman spectrometry hot-cell screening system and moisture sensor for analysis of ferrocyanide and moisture content of tank waste. These characterization tools address Hanford tank safety concerns.
- Developed Light Duty Utility Arm system ordered by users at the Idaho National Engineering Laboratory, Hanford, and the Oak Ridge National Laboratory, for tank characterization and waste retrieval.
- Demonstrated (pilot-scale) high pressure water-jet technology for tank waste retrieval.
- Removed cesium (pilot-scale) from Oak Ridge alkaline tank waste using sorbents developed by the Tank Focus Area and the Efficient Separations and Processing Crosscutting Program in preparation for a large-scale (processing 25,000 gallons) demonstration starting in FY 1996.
- Prepared mobile evaporator for hot demonstration on Melton Valley Storage Tanks (MVST) waste at Oak Ridge in FY 1996.

FY 1996 Accomplishments (To Date and Planned) - Radioactive Tank Waste Remediation (cont'd)

- Complete demonstration of 2 hot-cell based core scanning technologies for elemental and moisture analysis. Deploy at Hanford, the moisture analysis technology to reduce cost and time of safety related characterization needs.
- Prepare in situ chemical speciation sensor package on cone penetrometer for deployment in Hanford tanks.
- Deliver and commence testing of Light Duty Utility Arm Systems for deployment in tanks at Hanford, Oak Ridge, and Idaho for characterization and waste retrieval.
- Complete (full-scale) development of high-pressure water-jet waste retrieval and conveyance systems for Oak Ridge and Idaho tanks.
- Initiate mobilization of salt cake from Tank 41 at Savannah River as part of Waste Retrieval and Tank Closure Demonstration of alternative retrieval technology.
- Transfer out-of-tank evaporator technology to Oak Ridge to reduce waste volume and reduce need for additional tank construction.
- Initiate (full-scale) hot demonstration of cesium removal on 25,000 gallons of Melton Valley Storage Tank Waste at Oak Ridge.
- Demonstrate and transfer technology for TRU removal from acid wastes to Idaho.
- Transfer Extended Sludge Processing technology to Hanford for cesium and technetium removal from supernates.
- Complete process development for vitrification of cesium-loaded sorbent generated by Oak Ridge waste treatment.
- Initiate implementation of LLW immobilization for Oak Ridge gunite tank waste materials.

FY 1997 Planned Accomplishments

Characterization/Safety $9,158

- Transfer hot cell scanning technology for elemental analysis of core samples to Hanford user. Reduces characterization cost time.
- Transfer in situ probe for detection of molecular species in tank waste to Hanford user. Reduces need for core based analyses.
- Transfer Light Duty Utility Arm system for characterization, inspection, and retrieval application at three tank sites.
- Initiate development of process monitoring and control systems for retrieval and pretreatment processing and for safe storage of wastes.

Retrieval/Closure 8,225

- Complete testing and deploy high-pressure water-jet system in Oak Ridge gunite and Idaho tanks to retrieve waste heels.
- Support the closure of Savannah River Site (SRS) tanks using heel removal technology and appropriate closure criteria.

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III. Performance Summary - Radioactive Tank Waste Remediation (cont'd)

FY 1997 Planned Accomplishments

Pretreatment 8,482
- Complete transfer of cesium removal technology to Oak Ridge for treatment of Oak Ridge Melton Valley Storage Tanks waste.
- Complete transfer of solid-liquid separations to Oak Ridge as part of a gunite tank remediation system.
- Implement and transfer strontium (Sr) removal technology from acid wastes to Idaho for volume reduction.
- Develop and demonstrate caustic recycle technology on Savannah River tank wastes.
- Provide performance data on enhanced sludge washing to Hanford to impact development of process design to minimize volume of HLW for disposal.
- Initiate implementation of counter current decanting technology on SRS sludges.

Immobilization 4,208
- Vitrify cesium-loaded sorbents resulting from cesium removal demonstration to demonstrate complete cesium treatment system through final waste form.
- Using grout and glass processes, immobilize retrieved gunite tank wastes to select LLW waste form based on actual performance data.

Hanford Tank Initiative ..... $ 7,000
- Identify commercially available technologies to be used in Hanford Single Shell Tank heel removal and closure.
- Characterize residual wastes in a target tank in preparation for tank closure (Tank 104-AX is proposed).
- Initiate removal of waste from tanks to support process development design.
- Obtain cost-performance data for tank retrieval to facilitate closure decisions at Hanford.

Total, FY 1997 Radioactive Tank Waste Remediation $37,073

Explanation of Funding Changes FY 1996 to FY 1997

- The increase from FY 1996 reflects an initiative to demonstrate characterization and retrieval technologies in Hanford tanks resulting in 2 tank closures in four years and supports Phase II privatization activities.

Major Issues

- None

CONTAMINANT PLUME CONTAINMENT

I. Mission Supporting Goals and Objectives

Eighty-five percent of the EM Office of Environmental Restoration's high priority problems are contaminated plumes-related, amounting to more than 600 billion gallons of contaminated groundwater and more than 200 million cubic yards of contaminated soils. Two-thirds of the plumes contain mixed radioactive and hazardous contaminants and most organic contaminant plumes are suspected of containing dense non-aqueous phase liquid sources (DNAPLS) e.g., chlorinated-solvents, which are heavier than water. The mission of this Focus Area is to provide new cleanup approaches that reduce the cost of groundwater and soil remediation, while reducing risk consistent with future land use and DOE cleanup needs schedules.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Contaminant Plume Containment	$32,674	$30,742	$31,017	$275	1%

III. Performance Summary

FY 1995 Accomplishments

- Improved technologies resulting in improved barrier materials and installation methods (Polysiloxane Viscous Liquid Barrier) for permeable barrier construction.
- Developed subsurface access cryogenic drilling method and a method for Potassium Permanganate Injection into the subsurface using a Multi Point Injection System for treating chlorinated solvents trapped in low-permeability media.
- Made four technologies available for transfer, including a characterization (Unsaturated Flow Apparatus), a subsurface access (Resonant Sonic TM drilling), container (Enviro Wall Containment System) and treatment technologies (Thermally Enhanced Vapor Extraction System).
- Thirty percent of the Plume Focus Area budget was directed to the private sector (outside of Industry Programs) for technology development to further enhance commercial availability of technologies for site implementation.

FY 1996 Accomplishments (To Date and Planned)

- Transfer 2 improved technologies for chlorinated solvent remediation by Electro-Osmosis (LASAGNA™) and In Well Vapor Stripping.
- Conduct full-scale demonstrations of permeable barriers including reactive barriers using iron or sorption media emplaced in subsurface treatment zones or created through the injection of chemical reducing agents including chemically enhanced barriers at the Hanford site.

III. Performance Summary - Contaminant Plume Containment (cont'd)

FY 1996 Accomplishments (To Date and Planned)

- Conduct full-scale demonstrations of in situ transformation technologies including chemical oxidation/reduction methods to reduce risk from contaminants such as radionuclides and organics including: In Situ Chemical treatment/Gaseous reduction of Chromium at a DOD site, In Situ Chemical Oxidation of Contaminated Soils at the Kansas City Plant, and In Situ Redox Manipulation at the Hanford site.
- Conduct pilot- and full-scale demonstrations to address engineering issues for groundwater reinjection as an environmental solution-mining technology, environmental measurement of radiation during drilling, and the cost avoidance of smart sampling methods including Enhanced Recovery of Uranium/In Situ Mining and Environmental Measurement While Drilling.
- Conduct pilot- and full-scale demonstrations of ex situ separation technologies including magnetic separation, chemical separation, and biological separations for metals and radionuclides including: MAG*SEP™ for groundwater remediation, Mound Selentec Feasibility Study for treating plutonium in soils, three Resource Recovery Project technology demonstrations, and a Biomass Remediation System for treating dispersed surfacial contamination.

FY 1997 Planned Accomplishments

Reactive and Deep Subsurface Barriers	$ 6,220
• Conduct pilot- and full-scale tests of reactive barriers to selectively contain metals, and deep barriers to prevent further migration of plumes or to focus groundwater flow (including use of adsorptive materials and hydraulic guides).	
Metals and Radionuclides in Aquifer Media	8,141
• Conduct pilot- and full-scale tests of systems to characterize and remove or immobilize metals in aquifers using oxidation/reduction, bioremediation, and solution mining (including a portable tritium analysis system, polymeric separations, MAG*SEP (TM) and related solution mining technologies, electromigration systems, chemical oxidation/reduction manipulation, and bioaccumulation).	
DNAPLs in Aquifer Media	6,498
• Conduct pilot-scale demonstration of systems for characterization and remediation of Dense Non-Aqueous Phase Liquids (DNAPL) trapped in saturated and unsaturated media (including tracer systems, geophysical and chemical tools for determining the contaminant distribution, mobilization systems for remediating DNAPL pools, and down-hole treatment modules).	
DNAPLs in Soils	10,158
• Conduct full-scale testing of characterization techniques and chemical flooding of biological systems for the removal or destruction of DNAPL sources trapped in the soil in and above anaquifer, including soil heating thermal technology, recirculation well treatment of Tecnesium and chlorinated solvents, intrinsic anaerobic bioremediation, and a modified in-well vapor stripping system.	
Total, FY 1997 Contaminant Plume Containment	$31,017

III. Performance Summary - Contaminant Plume Containment (cont'd)

Explanation of Funding Changes FY 1996 to FY 1997

- None

Major Issues

- None

LANDFILL STABILIZATION

I. Mission Supporting Goals and Objectives

DOE landfills contain an estimated 3 million cubic meters of buried waste with most transuranic, low-level and/or hazardous waste posing threats to the environment and the public. The mission of this Focus Area, is using the best available science and technology, to develop, demonstrate, and implement containment/remediation/disposal technology systems that enable effective remediation/treatment, reduce risks, and reduce costs consistent with future land use and DOE cleanup needs schedules.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Landfill Stabilization	$31,048	$27,066	$26,818	$-248	1%

III. Performance Summary

FY 1995 Accomplishments

- Demonstrated technology systems to achieve the goal of source term containment by January 1997 including a full scale cold demonstration of the close-coupled barrier at Hanford, bench scale demonstration of in situ waste destruction and vitrification system and a pilot scale demonstration of alternative landfill covers for the arid and semi-arid western United States in conjunction with EPA and state regulators.
- Demonstrated technology systems to meet goal of retrieval of source terms including the Cooperative Telerobotic Retrieval System and the Cryogenic Cutting System at the INEL Cold Test Site.
- Demonstrated technology systems to meet goal of treatment and processing of excavated wastes including bench scale test of High Gradient Magnetic Separation Monitor for soil cleanup at Fernald, bench scale demonstration of the Minimum Additive Waste Stabilization to produce glass and vitreous ceramic wasteforms, and a pilot-scale demonstration of the graphite DC arc Plasma System with simulated buried waste.
- Demonstrated technology systems for non-destructively verifying and monitoring transuranic containerized waste, implemented the Dig-face Characterization System at Mound Area 7, and implemented the Multi Sensor Analysis Program with the EM Office of Environmental Restoration at the Sandia Chem Waste Landfill.

III. Performance Summary - Landfill Stabilization (cont'd)

FY 1996 Accomplishments (To Date and Planned)

- Demonstrate technology systems to meet goal of containment of source items including 4 pilot scale alternative landfill cover systems, in a Smart Geomembrane to monitor performance throughout the life of the landfill, and a close-coupled barrier system at a Brookhaven Glass Bottle Pit with EM-40. All systems include verification and monitoring tools to test the integrity and long-term performance of the systems.
- Demonstrate technology systems for removal, treatment, processing, and disposal of buried waste including a pilot demonstration of ex-situ removal/treatment of TRU/LLW using Arc Plasma technology, a bench scale demonstration of hybrid plasma technology to treat waste containing Pu-238 and a full demonstration at a cold site of In Situ Waste Destruction and Vitrification.
- Demonstrate technology systems for the in situ stabilization of buried waste including a multi-port jet grouting process to stabilize buried waste prior to retrieval at the INEL Cold Test Site and 4 different emplacement methods of different grout materials at an Oak Ridge Cold Test Site with the EM Office of Environmental Restoration.
- Demonstrate the ability to safely retrieve radioactive waste by implementation of the Dig-Face Characterization system at the Sandia radioactive landfill.

FY 1997 Planned Accomplishments

• Demonstrate and/or implement technology systems to address the containment of source terms including a viscous liquid vertical and horizontal barrier at Savannah River H-basin, Cryocell™ at Oak Ridge, polymer based grout barrier at Hanford, European gouting techniques for vertical and horizontal barriers, and several different innovative landfill covers for the arid west at the Sandia pilot-scale test field. All systems include verification and monitoring as well as the development of performance specifications for use at other sites	$18,493
• Demonstrate the ability to safely retrieve waste by the implementation of the Cooperative Telerobotic Retrieval System at INEL Pit 9 in conjunction with tools developed by the EM Office of Environmental Restoration	4,402
• In conjunction with stabilization of TRU-buried waste, demonstrate Active Passive Neutron Examination, and Assay characterization system at INEL Cold Test Site	3,487
• Demonstrate the ability to safely treat waste in situ at Oak Ridge using the bottom-up In Situ Vitrification System	436
Total, FY 1997 Landfill Stabilization	$26,818

Explanation of Funding Changes FY 1996 to FY 1997

- None

Major Issues

- None

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DECONTAMINATION AND DECOMMISSIONING

I. Mission Supporting Goals and Objectives

Over 7,000 contaminated buildings in the complex need deactivation with 700 requiring decommissioning. These buildings currently account for an inventory of over 600,000 metric tons of metals and 6.3 million cubic feet of contaminated concrete plus an estimated 400,000 metric tons of metal in scrap piles. Inefficiencies in baseline technologies pose high safety and health risks for workers along with high surveillance and maintenance costs in the disposition of this inventory. The mission of this Focus Area is to develop and demonstrate improved technologies and systems to solve customer-identified needs to decontaminate and decommission DOE's radiological contaminated surplus facilities and their contents and to facilitate the acceptance, approval, transfer, commercialization and deployment of these technologies and systems.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Decontamination and Decommissioning	$12,874	$14,694	$15,675	$981	7%

III. Performance Summary

FY 1995 Accomplishments

- Successfully tested/demonstrated full scale process to fabricate stainless steel containers from materials with residual contamination.
- Successfully tested engineering development/pilot scale microwave concrete decontamination system.
- Successfully tested engineering development/pilot scale Rothotherm evaporator process on plutonium surrogate solutions.
- Successfully tested advanced development/bench scale nozzle, which is part of a process to decontaminate a metal surface using carbon dioxide pellets with a liquid nitrogen carrier.

FY 1996 Accomplishments (To Date and Planned)

- Conduct three large-scale demonstration projects.
- Demonstrate full scale metal and concrete dismantlement system at the Chicago Pile 5 Reactor Decommissioning Project.
- Demonstrate full scale equipment decontamination methods, material handling, and size reduction equipment, and improved worker protection systems at the Fernald Plant 1 decommissioning project.
- Demonstrate full scale process to characterize facilities around the Hanford C-Reactor to cocoon the graphite reactor block.
- Demonstrate full scale process to decontaminate interior metal surfaces using a gas phase technology at the Portsmouth Gaseous Diffusion Plant.

III. Performance Summary - Decontamination and Decommissioning (cont'd)

FY 1996 Accomplishments (To Date and Planned) - (cont'd)

- Demonstrate full scale asbestos immobilization chemical process at the Brookhaven National Laboratory.
- Demonstrate full scale remote laser cutting system at Hanford B-Hot Cell.
- Demonstrate full scale process for final disposition of asbestos at Hanford.
- Demonstrate full scale process to decontaminate a Plutonium Contaminated Glovebox at Savannah River.
- Demonstrate full scale process to decontaminate tru-contaminated material and minimize Transuranic Waste in a Battelle Columbus Hot Cell.

FY 1997 Planned Accomplishments

Large-Scale Demonstration (LSD)	$ 9,900
• Demonstrate a suite of full-scale deactivation, decontamination, dismantlement, and materials disposition technologies for the deactivation and decommissioning of on-going D&D projects.	
• Continue the dismantlement of the Chicago Pile 5 Test Reactor, the Fernald Plant 1 Uranium Processing Facility, and deactivation/cocooning of C-Reactor/graphite reactor block.	
• Initiate the fourth (4th) and fifth (5th) LSDs for plutonium, uranium, tritium, and lithium processing facilities or gaseous diffusion plant.	
• Obtain technology cost and performance data for improved and baseline technologies to facilitate commercial deployment.	
Industry Solicitation	3,060
• Demonstrate private sector technologies (full scale for the first time within the DOE complex) in the Large Scale Demonstrations.	
• Decontaminate Concrete/Metal building materials while minimizing secondary waste.	
• Remotely dismantle structures and recycle building materials.	
Technology Insertion Projects	2,715
• Demonstrate innovative solutions at full scale within existing D&D projects to address gaps and urgent needs for which a LSD is not available.	
• Deactivate, decontaminate, and decommission a fuel storage pool.	
• Decontaminate and dismantle glovebox and hot cells.	
Total, FY 1997 Decontamination and Decommissioning	$15,675

III. Performance Summary - Decontamination and Decommissioning (cont'd)

Explanation of Funding Changes FY 1996 TO FY 1997

- The increase from FY 1996, reflects the recently adopted strategy of introducing innovative technologies and systems to the customer via Large Scale Facility Demonstrations at selected DOE sites. The use of large scale demonstrations as the major mechanism to conduct D&D technology development activities represent a major shift in the management and provides opportunities to achieve or accelerate the completion of EM's D&D programmatic objectives while demonstrating a suite of innovative/improved technologies.

Major Issues

- None

TECHNOLOGY DEVELOPMENT

CROSSCUTTING PROGRAMS

CHARACTERIZATION, MONITORING, AND SENSORS

I. Mission Supporting Goals and Objectives

Before remediation, treatment, and D&D activities can commence, 3,700 contaminated sites, 1.5 million barrels of stored waste, 385,000 m^3 of high-level tank waste, and between 1,700 and 7,000 facilities require characterization. In addition, characterization and sensor technologies are needed that enhance the safe and effective monitoring of waste retrieval, site remediation and closure, waste treatment, and D&D processes. This Crosscutting program's mission is to address high priority needs identified by the five Focus Areas through promoting the development and application of advanced characterization technologies and strategies through focused research and development.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Characterization, Monitoring, and Sensors	$19,505	$14,602	$15,553	$951	7%

III. Performance Summary

FY 1995 Accomplishments

- Implemented expedited site characterization methodology at the DOE Pantex facility realizing a $4M savings.
- Demonstrated instrumentation for cone penetrometers to sample groundwater, determine sampling location, and monitor vadose zone moisture eliminating need to drill monitoring wells for sample collection..
- Demonstrated real-time portable analyzers for monitoring volatile organic compounds in wells at Idaho and Savannah River.
- Demonstrated electrical resistance tomography for detection of leaks as small as 50 gallons from buried high-level waste tanks.
- Demonstrated the Fourier Transform Infrared spectrometric system for continuous emission monitoring at incinerator sites at Oak Ridge and Jefferson, Arkansas, with the goal of obtaining Environmental Protection Agency Best Demonstrated Available Technology designation.

III. Performance Summary - Characterization, Monitoring, and Sensors

FY 1996 Accomplishments (To Date and Planned)

- Assess the performance of process monitors and controls for assurance of waste form quality in plasma and vitrification treatment systems.
- Employ monitors for closed-loop/controlled-release off-gas systems in initial, permitting, and complete testing of plasma and vitrification treatment systems.
- Develop sensors and deployment systems for in situ measurement of physical and chemical properties of tank waste.
- Integrate the expedited site characterization methodology into working plan for environmental restoration activities at DOE's Savannah River Site.
- Demonstrate techniques for locating uranium, plutonium, or RCRA metals on surfaces and inside sealed pipes and ducts at Oak Ridge.
- Complete development of field deployable instrumentation for chemical analyses and groundwater samples.

FY 1997 Planned Accomplishments

Waste Characterization I ..... $ 4,355

- For plasma and vitrification treatment: develop, validate, and implement automated, non-intrusive and non-destructive screening/characterization systems for incoming waste in unopened containers. Initial systems will be transportable to support compact mobile treatment systems.
- High-level waste tank sensor systems for in situ: test of physical properties of tank waste; geophysical methods for detecting gross matrix characteristics; and chemical analysis methods.
- High-level waste tank sensor deployment systems (e.g., cone penetrometer sensor systems, or novel remote sensing fiber optics): to deploy sensors for analyzing tank waste.

Site Characterization 2,800

- Complete development of non-intrusive geophysical methods to characterize and locate buried waste, buried structures, waste zones, and geologic structures.

Process Monitoring and Control 4,250

- For thermal treatment processes: develop, validate, and implement continuous on-line process monitors and controls for closed-loop cleanup and controlled release off-gas systems.
- Develop, validate, and implement process monitoring sensors for support of process control for product quality assurance.
- Develop, validate, and implement process monitoring sensors and systems for monitoring and documenting final waste form quality.
- Develop, validate, and implement continuous real time monitors for radionuclides in liquid process and effluent of mixed waste treatment systems.

III. Performance Summary - Characterization, Monitoring, and Sensors

FY 1997 Planned Accomplishments (cont'd)

Contaminant Containment, and Stabilization Characterization	1,448
• On-line monitoring of chemical (metals and organics) and radioactive contaminants during cleanup and treatment of soils and groundwater.	
• Monitoring technology for the emplacement and effectiveness of subsurface barriers.	
• Sensors and Instrumentation for subsurface deployment by cone penetrometer or other minimally intrusive methods for determination of metal and radioactive contaminants.	
Facility Characterization	2,700
• Instrumentation for non-destructive assay of RCRA metals and radionuclides in process equipment, ducts, and pipes.	
Total, FY 1997 Characterization, Monitoring, and Sensors	$ 15,553

Explanation of Funding Changes FY 1996 to FY 1997

- Increase over FY 1996 provides emphasis on incorporating newly developed sensors for process controls and emission monitors into the plasma and vitrification waste treatment systems and tank characterization activities.

Major Issues

- None

EFFICIENT SEPARATIONS and PROCESSING

I. Mission Supporting Goals and Objectives

Separations and selected treatment processes are needed to treat and immobilize a broad range of radioactive wastes. Treatment technologies do not exist in some cases, while in others, improvements are needed to reduce costs, reduce secondary waste volumes, and to improve waste form quality. The mission of this Crosscutting program is to develop improved, safe, cost-effective separations and treatment processes which are to be integrated into systems developed by the focus areas.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Efficient Separations and Processing . .	$14,716	$12,685	$12,747	$62	0%

III. Performance Summary

FY 1995 Accomplishments

- Demonstrated plutonium residue treatment (supports Defense Nuclear Facility Safety Board 94-1) on bench-scale.
- Achieved industrial scale production of new crystalline silicontitanate (CST) sorbent that will result in improved cesium removal capabilities from waste waters.
- Demonstrated 3M™ web technology to address the removal of technetium from aqueous streams at West Valley.
- Demonstrated feasibility of separation of tritium from water.
- Demonstrated industrially, the Chelating Polymer Technology for metal removal from water to meet regulatory standards, and won a R&D 100 award.

FY 1996 Accomplishments (To Date and Planned)

- Plutonium residue treatment offering savings in the $100 million to $300 million range to be transferred to the EM Office of Nuclear Material and Facility Stabilization for demonstration at Rocky Flats.
- CST sorbent demonstrated and selected for cesium removal from alkaline tank wastes at Oak Ridge.
- Provide sorbents for reactive barriers used in plume mitigation.
- Chelating Polymer Technology demonstration planned for removal of Pu and Am from plutonium facility waste waters. Potential $40M savings identified, and commercialization actively pursued.

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III. Performance Summary - Efficient Separations and Processing (cont'd)

FY 1997 Planned Accomplishments

Long-Lived Radionuclide Separations • Initiate development of transuranic separations from soils, solid matrices, and deactivation wastes such as plutonium residues. • Demonstrate technology to remove technetium from groundwater. • Complete development of acid waste transuranic removal; provide transuranic separations for decontamination wastes. • Initiate work on removal of uranium from soils, soil wash wastes, and decontamination wastes.	$ 3,447
Short-Lived Radionuclide Separations • Develop and transfer cesium and strontium sorbents for reactive barriers. • Demonstrate separation of tritiated water from groundwater, pond water, spent fuel storage pool water, or mixed waste steams. • Demonstrate separations for cesium and strontium from acid tank waste and basic tank wastes.	3,800
Heavy and Toxic Metal Separations • Develop separations technologies for mercury from soils, mixed waste, and solid matrices. • Develop separations for lead, cadmium, chromium, and/or cobalt from aqueous waste streams.	2,300
Waste Treatment and Processing • Develop separations technologies in support of remediation of DNAPLs (Plumes). • Develop and demonstrate sodium management.	3,200
Total, FY 1997 Efficient Separations and Processing	$12,747

Explanation of Funding Changes FY 1996 to FY 1997

- None

Major Issues

- None

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ROBOTICS

I. Mission Supporting Goals and Objectives

Robotic technologies reduce worker exposure to the absolute minimum while providing proven cost-effective (and in some cases the only acceptable) approach to cleanup. The mission of this Crosscutting program is to develop robotic systems where justified by safety, cost, and/or efficiency arguments.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Robotics	$22,279	$14,921	$15,883	$962	6%

III. Performance Summary

FY 1995 Accomplishments

- Demonstrated advanced multi-plane oscillation damping controls, surface following, and collision avoidance on manipulator arm systems.
- Completed validation and demonstration of integrated standard analysis method for automated analysis of soils and sludges contaminated with organics.
- Selected private systems integrator and commercializer for chemical analysis automation systems.
- Demonstrated autonomous robot for inspecting stored waste drums.

FY 1996 Accomplishments (To Date and Planned)

- Complete automated analytical chemistry module subsystems for RCRA metals contaminants and integrate into a metals analysis systems for samples in solid and liquid matrices; start beta testing of the non-volatile organics system.
- Complete and integrate all Robotics Technology Assessment Facility subsystems and conduct comprehensive cold demonstration using realistic mockup of an actual decontamination and dismantlement project, the CP-5 Reactors at Argonne National Laboratory.
- Integrate generic controls, cost/benefit and simulation efforts; focus coordinated manipulator work on Decontamination and Dismantlement.
- Develop and demonstrate advanced graphics controls, simulation/modelling, and sensor integration on Oak Ridge Light Duty Utility Arm.

III. Performance Summary - Robotics (cont'd)

FY 1997 Planned Accomplishments

Mixed Waste Materials Handling	
• Design/develop front-end materials handling and remote sizing systems.	$ 4,100
Tank Waste Retrieval System	
• Integrate all systems on the Light Duty Utility Arm and a separate mobile system. Demonstrate cooperative retrieval of waste by two systems at the gunite Tank Project, Oak Ridge National Laboratory.	2,100
D&D Systems	
• Demonstrate remote systems at the CP-5 Reactor Dismantlement Project, Arngonne National Laboratory.	4,900
Contaminant Analysis Automation	
• Complete development of semi-volatile organics and metals automated analysis systems and beta site test the metals system.	4,783
Total, FY 1997 Robotics	$15,883

Explanation of Funding Changes FY 1996 to FY 1997

- The increase in FY 1997 allows the acceleration of the deployment for a mobile system to be used in cooperation with the Light Duty Utility Arm at the Oak Ridge Tank Farm.

Major Issues

- None

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PRIVATE INDUSTRY AND UNIVERSITY PROGRAMS

PRIVATE INDUSTRY PROGRAMS

I. Mission Supporting Goals and Objectives

The private sector is an increasingly important source of innovative technologies, which must be or are being adapted by DOE to improve the efficiency and reduce the costs of its cleanup program. While technologies from larger companies are identified and developed within this program, special attention is also given to expanding the role of the small business community. The mission of the Private Industry and University Programs is to involve the private sector and universities in developing, demonstrating, and implementing improved and commercially viable technologies that address the needs of the Focus Areas for use by DOE.

II. Funding Schedule

Program Activity	Comparable Appropriation	FY 1995 Comparable Appropriation	FY 1996 FY 1997 Request	$ Change	% Change
Private Industry Programs	$47,651	$46,900	$40,599	$-6,301	-13%

III. Performance Summary

FY 1995 Accomplishments

- Deployed the Halogenated Chemical monitor as the primary analytical method for the vapor samples required for Routine Quarterly Monitoring at Idaho and to obtain a database of passive vapor emissions within the 200W area of Hanford.
- Conducted field testing of the geophysical data fusion for subsurface imaging software package.
- Completed "cold" demonstration of a remote-controlled, mobile, dual-arm work system as a platform to perform physical tasks.
- Experiments demonstrated that the electrodes with gas injection extend the life of a plasma arc torch by a factor of 10 or more. Design and fabrication of the platelet-cooled anode was completed. Multiple electrodes have been purchased by an end-user.

FY 1996 Accomplishments (To Date and Planned)

- Test the catalytic wet oxidation process for the treatment of multicomponent wastes.
- Construct a full scale, 25 tons per day transportable vitrification system at the Paducah Gaseous Diffusion Plant in Paducah, Kentucky, for the Mixed Waste Focus Area.
- Demonstrate the advanced design of prototype advanced worker protection system, which features a self-contained, extended service time breathing and cooling system for the Decontamination and Decommissioning Focus Area.

TECHNOLOGY DEVELOPMENT - PRIVATE INDUSTRY AND UNIVERSITY PROGRAMS (cont'd)

III. Performance Summary - Private Industry Programs (cont'd)

FY 1996 Accomplishments (To Date and Planned) (cont'd)

- Conduct integrated process testing for an electromagnetic mixed waste processing system for decontamination of asbestos insulation in various forms.
- Demonstrate on site, real-time, controllable electro-hydraulic scabbling process to remove thin layers of surface contamination from concrete.
- Initiate project for development of improved methods for efficient separations processes for highly radioactive and "high-risk" mixed wastes.

FY 1997 Planned Accomplishments

Mixed Waste $12,693
- Initiate development of ancillary technologies supporting DOE improved treatment of mixed waste such as off-gas treatment.
- Begin projects for non-thermal treatment options and advancements to current thermal treatment options.

Radioactive Tank Waste 1,385
- Demonstrate technologies for improved tank waste characterization, retrieval, pretreatment, and immobilization.

Landfill Stabilization 300
- Complete technology development for landfill characterization and surface and subsurface containment.
- Demonstration of improved technologies stabilization, removal, and treatment of buried waste and contaminated soils.

Contaminant Plume Containment 8,075
- Initiate technology development projects for in situ treatment, containment/stabilization and assessment of heavy metals and radionuclides in soils and groundwater.
- Demonstration of improved methods characterization, assessment, containment, and remediation of dense non-aqueous phase liquids.
- Development of sensors, detectors, and sampling techniques, which provide improved means of characterizing the content, extent, stability, and the movement of waste material.

Decontamination and Decommissioning 8,574
- Demonstrate commercially viable processes for decontamination of concrete and metal surfaces while generating less secondary waste.
- Development of projects for demonstration of reuse of bulk contaminated materials within DOE.
- Demonstration of robotics and automation systems to reduce human exposure and enable timely completion of remediation activities.

TECHNOLOGY DEVELOPMENT - PRIVATE INDUSTRY AND UNIVERSITY PROGRAMS (cont'd)

III. Performance Summary - Private Industry Programs (cont'd)

FY 1997 Planned Accomplishments

Technology Base Development	7,403
• Conduct technology based research and development and other technical studies in support of industrial projects.	
New Projects	2,169
• Initiate new projects to meet identified focus area needs.	
Total, FY 1997 Private Industry Programs	$40,599

Explanation of Funding Changes FY 1996 to FY 1997

- The FY 1997 Focus Areas' needs for private industry technology development are increasingly reflected in the Focus Area budgets. Minimal new activities are expected in FY 1997 without support from each of the Focus Areas and Crosscutting Programs.

Major Issues

- None

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UNIVERSITY PROGRAMS

I. Mission Supporting Goals and Objectives

Universities provide a unique opportunity to cooperate with the academic community in the development of fundamental data related to the application of technology development and the follow-up activities related to the resolution of technical issues and system optimization. Attention is given to providing credible data, from non-conflicted, recognized experts in support of activities related to the acceptance of innovative technologies by the regulators and stakeholders.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
University Programs	$12,165	$10,100	$17,813	$7,713	+76%

III. Performance Summary

FY 1995 Accomplishments

- Established a program for the Investigation of Hazardous Materials in Aquatic Environments.
- Sponsored a conference in Eastern Europe on Hazardous Waste Remediation Technology Development to facilitate the evaluation and transfer of European Technologies into the DOE complex.
- Deployed mobile laboratory with diagnostic instrumentation for monitoring Plasma and Vitrification Systems.
- Established a sensor program in support of activities in the Decontamination and Decommissioning and Radioactive Tank Waste Remediaiton Focus Areas.

III. Performance Summary - University Programs (cont'd)

FY 1996 Accomplishments (To Date and Planned)

- Established a partnership with a Polish University to facilitate the evaluation and transfer of European environmental technologies for application to DOE problems.
- Continue the sensor program in support of activities in the Decontamination and Decommissioning and Radioactive Tank Waste Remediation.
- Conducted, for the Contaminant Plume Focus Area, evaluations of the health of contaminated aquatic environments in the Mississippi River Basin in support of the concept that through natural processes, "Intrinsic Remediation" or self cleaning of the environment does occur.
- Continue development and demonstration of advanced diagnostic methods to characterize the plasma properties, melt properties, and downstream emissions from plasma torch facilities for the treatment of mixed waste.
- Initiated a series of technology demonstrations applicable to the Mixed Waste, Radioactive Tank Waste Remediation, and Decontamination and Decommissioning Focus Areas. Emphasis will be placed on integrating Western European research and development activities into the Focus Areas.

FY 1997 Planned Accomplishments

• Joint demonstration of characterization and remediation technologies with European partners	$1,500
• Continue the sensor program to support activities in the Decontamination and Decommissioning and Radioactive Tank Waste Remediaiton Focus Areas	5,000
• Continue evaluation of the capability of aquatic environments to attenuate contamination processes through natural biological and chemical activities	5,000
• Demonstrate advanced diagnostic and control instrumentation on operating plasma systems developed for mixed waste treatment	4,313
• Continue demonstrations of applicable western European technologies in the Radioactive Tank Waste Remediation and Decontamination and Decommissioning Focus Areas to demonstrate potentially significant cost savings, increased productivity, reduced environmental impacts, and improved worker health and safety	2,000
Total, University Programs	$17,813

Explanation of Funding Changes FY 1996 to FY 1997

- FY 1997 funding reflects increase in activities related to the Radioactive Tank Waste Remediation and Decontamination and Decommissioning Focus Areas.

Major Issues

- None

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FEDERAL ADVISORY COMMITTEE/DEVELOP ON-SITE INNOVATIVE TECHNOLOGIES:

I. Mission Supporting Goals and Objectives

This activity supports the development of stakeholder activities and regulatory cooperation with the Western Governors' Association (WGA) to facilitate the implementation of new technologies nationwide.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Federal Advisory Committee/Develop On-site Innovative Technologies	$1,320	$0	$0	$0	0%

III. Performance Summary

FY 1995 Accomplishments

- Established a Memorandum of Agreement among the States of California, Illinois, Massachusetts, and New Jersey committing the states to accept data on the performance of technologies demonstrated in other member States and adopt institutional incentives to promote the commercialization of innovative cleanup technologies.
- Established a twenty-one State Interstate Technology and regulatory Cooperation Working Group to facilitate cooperation among states in a common effort to test, demonstrate, evaluate, verify, and deploy innovative environmental technologies.

FY 1996 Accomplishments (To Date and Planned

- Federal Advisory Committee charter will expire June 1996; the Western Governors' Association Develop On-site Innovative Technologies will continue to function as a States organization without Federal sponsorship.
- Four more States; New York, Pennsylvania, Texas, and Washington have indicated that they will join the MOU. Member States committed to accepting data on the performance of technologies demonstrated in other member States and adopt institutional incentives to promote the commercialization of innovative cleanup technologies.

III. Performance Summary - Federal Advisory Committee/Develop On-site Innovative Technologies (cont'd)

FY 1997 Planned Accomplishments

- Federal Advisory Committee charter expired June 1996; the Western Governors' Association Develop On-site Innovative Technologies will continue to function as a States organization without Federal sponsorship.

Total, FY 1997 Federal Advisory Committee/Develop On-site Innovative Technologies ..... $ 0

Explanation of Funding Changes FY 1996 to FY 1997

- None

Major Changes

- None

SMALL BUSINESS INNOVATIVE RESEARCH PROGRAM

I. Mission Supporting Goals and Objectives

Grants provided via the Small Business Innovative Research (SBIR) Program advance technologies in the areas of chemical separations, characterization and in situ soil and groundwater treatment, which have direct application to the EM program.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Small Business Innovative Research Program	$0 1/	$4,337	$3,742	$ -595	-14%

III. Performance Summary

FY 1995 Accomplishments

- In FY 1995 EM was awarded 11 Phase I and 2 Phase II projects.

FY 1996 Accomplishments (To Date and Planned)

- FY 1996 projects are still being evaluated.

FY 1997 Planned Accomplishments:

- FY 1997 projects to be determined.

Explanation of Funding Changes FY 1996 to FY 1997

-

Major Issues

-

1/ Funding transferred to DOE's Office of Energy Research for administration of SBIR funding and grants.

TECHNOLOGY INTEGRATION

DOMESTIC TECHNOLOGY INTEGRATION

I. Mission Supporting Goals and Objectives

The mission of the Domestic Technology Integration Program is to assist the Focus Areas to maximize the commercial availability, acceptability, and implementation of new environmental technologies that are needed for environmental management at DOE sites. Full and early involvement by all interested parties is critical to the success of the technology development program. The program accomplishes this mission by: (1) providing the mechanisms, standardized methodologies, and initiatives to conduct the Focus Area programs and establish priorities with detailed input on considerations of other stakeholders, technology developers, DOE site cleanup operations, regulators, and the business sector; and (2) providing information and analyses for continual internal improvement and satisfaction of external parties decision making needs.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Domestic Technology Integration	$8,459	$17,027	$18,454	$+1,427	+8%

III. Performance Summary

FY 1995 Accomplishments

- Developed and implemented, in the Contaminant Plume Containment Focus Area, a technology deployment model that ensures orderly integration of DOE user needs, private-sector participation requirements, and regulatory and public acceptance criteria with Focus Area investment decision strategies.
- Initiated a national leveraging program to facilitate interactions between the public- and private-sectors, stimulate cost-shared development and demonstration efforts, and accelerate the commercialization of Focus Area technologies.
- Developed a successful Stakeholder Participation Strategy for EM technologies.

III. Performance Summary - Domestic Technology Integration (cont'd)

FY 1996 Accomplishments (To Date and Planned)

Systems Integration

- Implement a process for the simultaneous consideration of technical, programmatic, and non-technical factors such as commercialization, cost/benefit, public and regulator acceptance in technology development decisions.
- Institute a coordinated process involving Focus Areas and DOE site operations for setting the priority of R&D investments.
- Maintain Web-site applications for Focus Areas and other Technology Development program areas.

External Collaboration

- Develop and expedite processes for transferring stakeholders perspectives to the Focus Areas.
- Provide assistance to all Focus Areas, Crosscutting Programs, and Industry Programs to facilitate the commercialization of technologies.
- Continue multi-state demonstration and regulatory cooperation processes.
- Expand the system for multi-state verification of technology performance and cost.

FY 1997 Planned Accomplishments

Systems Integration	$ 8,625
• Apply advanced analytical methods (e.g., technology portfolio analysis, and risk analysis) in the formulation of Focus Area investment decisions. Maintain and coordinate data collection and management operations, which support the internal and external communication requirements of the Focus Areas.	
External Collaboration	9,829
• Engage stakeholders (e.g., end-users, regulators, the business community, affected tribes, and the public among others) in Focus Area decisions related to technology development investments. Assist the Focus Areas in activities with end-user sites to develop and validate performance-based treatment and remediation procurement specifications that will be accepted by stakeholders and provide commercialization facilitation services to the Focus Areas. Facilitate development of systems for multi-state cooperation, including verification of technology performance data with direct application to Focus Area technology implementation efforts.	
Total, FY 1997 Domestic Technology Integration	$18,454

III. Performance Summary - Domestic Technology Integration (cont'd)

Explanation of Funding Changes FY 1996 to FY 1997

- Implementation of WGA Federal Advisory Committee (FAC) recommendations for removal of regulatory and commercialization barriers through Interstate Technology Regulatory Cooperation Initiatives.
- Implementation of full data/information capabilities from the Technology Development information inventory.
- Program will increase its level of effort focused on the problems inherent in implementing EM-developed technologies at DOE sites.
- New emphasis on supporting performance-based cleanup and treatment procurements.

Major Issues

- None

INTERNATIONAL TECHNOLOGY INTEGRATION

I. Mission Supporting Goals and Objectives

The Office of Environmental Management (EM) is not yet realizing the full value of technical expertise, opportunities for foreign demonstrations, and cooperative technology development available through the international scientific community. The mission of the International Technology Program is to ensure continued awareness and available opportunities for EM participation with the International Science and Technology Community.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
International Technology Integration	$4,437	$3,568	$3,293	$-275	-8%

III. Performance Summary

FY 1995 Accomplishments

- Identified fifteen foreign environmental technologies for use at DOE sites, which are more efficient and effective than currently available U.S. technologies.
- Leveraged $20 million in international funding to address Focus Areas and Crosscutting Program's objectives.
- Accessed overseas test beds to allow the rapid and cost-effective demonstration of three technologies.
- Continued efforts on a significant joint U.S.-Russian research and development program for the treatment of hazardous and radioactive waste with a labor cost savings of 30:1;
- Initiated discussions and began planning with several scientific institutes in Central and Eastern Europe and Argentina to establish cooperative environmental technology development and demonstration projects;

III. Performance Summary - International Technology Integration (cont'd)

FY 1996 Accomplishments (To Date and Planned)

- Support implementation of the Expedited Site Characterization/Bioremediation demonstration project with the Polish Institute for Ecology of Industrial Areas.
- Identify foreign sites and support EM Focus Area managers in demonstrating their technologies abroad.
- Track EM involvement in the Newly Independent States Industrial Partnering Program.
- Define barriers to the import of foreign innovative technologies, and create an intellectual property rights protection plan.
- Provide interpreters/translation for international activities.
- Publish documents on EM International programs for public dissemination.
- Coordinate research assistant program, foreign delegations to international workshops.
- Manage international agreements.

FY 1997 Planned Accomplishments

International Technology Transfer	$ 475
• Develop and supply a variety of mechanisms to the Focus Areas and Crosscutting Programs in order to identify, evaluate, and acquire foreign environmental technologies that have application at EM sites; and to expedite the commercialization and transfer of EM-developed environmental technologies.	
Science and Technology Cooperation	2,818
• Participate with foreign scientific communities (Former Soviet Union/Russia, Central and Eastern European, etc.) in joint research and development activities to gain access to environmental technologies, technical information, and scientific expertise that will accelerate EM's cleanup effort.	
Total, FY 1997 International Technology Integration	$ 3,293

Explanation of Funding Changes FY 1996 to FY 1997

- Reduction reflects a decrease in the number of overseas demonstrations in FY 1997.

Major Issues

- None

PROGRAM SUPPORT

I. Mission Supporting Goals and Objectives

Program support focuses on activities that support technical, managerial, financial, and administrative functions within the various line organizations of the Technology Development program. This includes systems engineering analysis studies of various treatment and remediation options in order to determine comparative system performance, and system safety and public risk. This analysis provides the basis for selecting those systems of technologies that warrant further development or are ready for implementation. Also included is support for cost benefit analysis, organization studies, and strategic planning, coordination and interface with other federal and state agencies.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Support	$17,670	$19,635	$8,814	$-10,821	-55%

III. Performance Summary

FY 1995 Accomplishments

- Initiated field coordination groups for prioritizing technology needs in assuring technology implementation of emerging technologies.
- Initiated National Academy of Science peer review with national experts in science and engineering for determining effectiveness of technology development focus area activities.
- Completed and reported the total life cycle cost analysis of 19 thermal treatment systems options and a peer review of the results. Initiated tribal and stakeholder involvement in criteria and review process.
- Completed and reported on the overall costs of various options for use of depleted uranium for waste management; including its use as shielding for spent fuel and high-level waste.

FY 1996 Accomplishments (To Date and Planned)

- Continued National Academy of Science peer review with national experts in science and engineering for determining effectiveness of technology development focus area activities.
- Continued field coordination groups for prioritizing technology needs in assuring technology implementation of emerging technologies.
- Complete and report the total life cycle cost analysis of non-thermal treatment systems options.
- Complete a comparative analysis of thermal and non-thermal treatment systems including total life cycle costs, system performance, and safety/risk.

TECHNOLOGY DEVELOPMENT - PROGRAM SUPPORT (cont'd)

III. Performance Summary - Program Support

FY 1996 Accomplishments (To Date and Planned)

- Complete initial analysis of comparative incentives to produce various waste forms from mixed low-level waste and low-level waste.
- Implement innovative environmental technologies to be tested, with emphasis on improving worker health and safety, efficiency and productivity.

FY 1997 Planned Accomplishments

• Continued National Academy of Science peer review with national experts in science and engineering for determining effectiveness of technology development Focus Area activities	$ 1,900
• Continued field coordination groups for prioritizing technology needs in assuring technology implementation of emerging technologies	2,114
• Complete sensitivity studies to optimize and quantify potential cost savings by the application of R&D and efficiency measures	500
• Complete and report comparisons of thermal and non-thermal systems of technologies including options that will reduce costs and risks and improve overall performance and safety; complete tribal and stakeholder involvement in planning R&D, analyze subsystem options for air pollution control and liquid effluent control	1,900
• Test at least ten innovative environmental technologies to provide recommendations to the technology developer relative to improving worker health and safety, efficiency, and productivity	2,400
Total, FY 1997 Program Support	$8,814

Explanation of Funding Changes FY 1996 to FY 1997

- Reduced level of effort and completion of major study efforts in FY 1996 in the areas of Cost Benefit Analysis studies, Systems Engineering Analysis studies, and field coordination groups.

Major Issues

- None

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TECHNOLOGY DEVELOPMENT
(Obligations in thousands)

OBJECT CLASS SUMMARY

Direct Obligation:	FY 1995 Comp.	FY 1996 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Personnel Compensation:					
11.1 Full-time permanent	0	0	0	0	0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	0	0	0	0	0
11.9 Total Personnel Compensation	0	0	0	0	0
12.1 Civilian personnel benefits	0	0	0	0	0
13.0 Benefits for former personnel	0	0	0	0	0
21.0 Travel and transportation of persons	0	0	0	0	0
22.0 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	0	0	0	0	0
23.2 Rental payments to others	0	0	0	0	0
23.3 Communications, utilities, and misc charges		0	0	0	0
24.0 Printing and reproduction	0	0	0	0	0
25.4 Operation of GOCOs	30,566	50,835	40,230	64,200	30,561
25.5 Research and development	228,962	335,855	257,651	338,294	273,210
26.0 Supplies and materials	0	0	0	0	0
31.0 Equipment	17,993	22,923	0	0	0
32.0 Land and structures	0	0	0	0	0
33.0 Investments and loans	0	0	0	0	0
42.0 Insurance claims and indemnities	0	0	0	0	0
Subtotal, Direct Obligations	277,521	409,613	297,881	402,494	303,771

OBJECT CLASS SUMMARY - TECHNOLOGY DEVELOPMENT - (cont'd)

Direct Obligation:	FY 1995 Comp.	FY 1996 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
99.0 Reimbursable Obligations	0	0	0	0	0
99.9 Total Obligations	$277,521	$409,613	$297,881	$402,494	$303,771
Recovery of prior year obligations	0	0	0	0	0
Unobligated balance available, start of year	0	0	0	0	0
Unobligated balance available, end of year	0	0	0	0	0
Budget Authority	$277,521	$409,613	$297,881	$402,494	$303,771

a/ Departmental Alignment Amendment.

OFFICE OF ENVIRONMENTAL MANAGEMENT PROGRAM DIRECTION

I. **Mission Supporting Goals/Ongoing Responsibilities**:
Program Direction provides the overall direction and administrative support for the Environmental Management (EM) programs, including both Headquarters and field personnel. The role of the Headquarters work force is to determine and implement policy. To this purpose, EM Headquarters first establishes priorities and goals for the line programs, and then develops the baselines to assist in assessing the progress of planned activities. Subsequently, Headquarters personnel assess the adequacy of progress in order to report to Congress, interested stakeholders, and the public on the status of Environmental Management programs.

Headquarters activities include the management, coordination, tracking, and implementation of the EM Programs among the many sites throughout the DOE complex. In the field, Operations Office personnel are responsible for the oversight of the Department's contractor workforce that supports EM activities for the Department of Energy.

Program Direction has been grouped into four categories:

Salaries and Benefits provides for more than 3,000 Federal employees at Headquarters (employees based in the Washington, DC metropolitan area) and the ten major Operations Offices located throughout the United States, the Carlsbad Area Office and the Environmental Technology Centers located in Morgantown, WV and Pittsburgh, PA.

Travel includes all costs of transportation, subsistence, and incidental travel expenses of EM's Federal employees in accordance with Federal Travel Regulations.

Support services includes technical and administrative support, program management and integration, management information and support systems, performance systems, and cost/schedule studies. This also includes technical support for Systems Engineering and Analysis studies that focus on identifying technologies that merit further research and development, as well as implementation. Program Management includes support for organizational and strategic planning, coordination and interaction with other Federal and State agencies and private industrial concerns, performance measurement and cost assessment. Office Administration includes support for personnel development, training, travel, and logistics.

Other related expenses includes funding for building maintenance, rents, communications, utilities, computer/video support, printing and graphics, copying, postage, and supplies.

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OFFICE OF ENVIRONMENTAL MANAGEMENT PROGRAM DIRECTION

II. Funding Table:

	FY 1995 Comparable Appropriation	FY 1996 Appropriation	Real & Com Adjustments	FY 1996 Comparable Appropriation	FY 1997 Request
Albuquerque:					
Salaries and Benefits	$13,450	$0	$15,543	$15,543	$15,198
Travel	1,437	0	1,301	1,301	1,222
Support Services	4,254	0	2,961	2,961	2,759
Other Related Expenses	364	0	412	412	386
Total	$19,505	$0	$20,217	$20,217	$19,565
FTEs	173.1	0.0	196.0	196.0	184.0
Average	$113	$0	$103	$103	$106
Carlsbad Area Office					
Salaries and Benefits	$4,507	$0	$4,996	$4,996	$5,204
Travel	481	0	418	418	418
Support Services	0	0	0	0	0
Other Related Expenses	87	0	126	126	643
Total	$5,075	$0	$5,540	$5,540	$6,265
FTEs	58.0	0.0	63.0	63.0	63.0
Average	$88	$0	$88	$88	$99
Chicago:					
Salaries and Benefits	$7,110	$0	$6,104	$6,104	$7,394
Travel	642	0	571	571	582
Support Services	4,744	0	2,047	2,047	85
Other Related Expenses	431	0	479	479	489
Total	$12,927	$0	$9,201	$9,201	$8,550
FTEs	91.7	0.0	102.0	102.0	104.0
Average	$141	$0	$90	$90	$82

II. Funding Table (cont'd):

	FY 1995 Comparable Appropriation	FY 1996 Appropriation	Real & Com Adjustments	FY 1996 Comparable Appropriation	FY 1997 Request
Idaho:					
Salaries and Benefits	$22,717	$0	$22,440	$22,440	$22,274
Travel	1,207	0	936	936	881
Support Services	3,302	0	3,141	3,141	1,897
Other Related Expenses	3,735	0	2,475	2,475	2,357
Total	$30,961	$0	$28,992	$28,992	$27,409
FTEs	280 8	0 0	272 0	272 0	259 0
Average	$110	$0	$107	$107	$106
METC:					
Salaries and Benefits	$1,183	$0	$1,200	$1,200	$1,249
Travel	118	0	94	94	94
Support Services	2,451	0	1,144	1,144	969
Other Related Expenses	20	0	20	20	20
Total	$3,772	$0	$2,458	$2,458	$2,332
FTEs	14 1	0 0	14 0	14 0	14 0
Average	$268	$0	$176	$176	$167
Nevada:					
Salaries and Benefits	$4,120	$0	$4,484	$4,484	$4,590
Travel	258	0	220	220	216
Support Services	2,216	0	1,074	1,074	757
Other Related Expenses	378	0	1,617	1,617	1,932
Total	$6,972	$0	$7,395	$7,395	$7,495
FTEs	57 1	0 0	61 0	61 0	60 0
Average	$122	$0	$121	$121	$125
Oak Ridge:					
Salaries and Benefits	$11,958	$0	$13,389	$13,389	$12,730
Travel	1,012	0	889	889	811
Support Services	3,658	0	2,436	2,436	2,176
Other Related Expenses	3,752	0	4,121	4,121	3,760
Total	$20,380	$0	$20,835	$20,835	$19,477
FTEs	155 7	0 0	171 0	171 0	156 0
Average	$131	$0	$122	$122	$125

II. Funding Table (cont'd):

	FY 1995 Comparable Appropriation	FY 1996 Appropriation	Real & Com Adjustments	FY 1996 Comparable Appropriation	FY 1997 Request
Ohio:					
Salaries and Benefits	$14,645	$0	$18,800	$18,800	$19,599
Travel	766	0	776	776	776
Support Services	5,443	0	7,602	7,602	5,748
Other Related Expenses	1,849	0	2,327	2,327	2,327
Total	$22,703	$0	$29,505	$29,505	$28,450
FTEs	225 8	0 0	235 0	235 0	235 0
Average	$101	$0	$126	$126	$121
Oakland:					
Salaries and Benefits	$5,870	$0	$6,452	$6,452	$6,328
Travel	347	0	299	299	282
Support Services	1,987	0	2,218	2,218	1,479
Other Related Expenses	1,278	0	1,377	1,377	1,296
Total	$9,482	$0	$10,346	$10,346	$9,385
FTEs	78 9	0 0	85 0	85 0	80 0
Average	$120	$0	$122	$122	$117
PETC:					
Salaries and Benefits	$156	$0	$188	$188	$3,019
Travel	45	0	42	42	158
Support Services	118	0	400	400	350
Other Related Expenses	13	0	8	8	62
Total	$332	$0	$638	$638	$3,589
FTEs	1 7	0 0	2 0	2 0	31 0
Average	$195	$0	$319	$319	$116
Richland:					
Salaries and Benefits	$41,979	$0	$43,277	$43,277	$42,911
Travel	1,720	0	1,390	1,390	1,324
Support Services	35,813	0	25,558	25,558	16,372
Other Related Expenses	12,846	0	12,978	12,978	12,356
Total	$92,358	$0	$83,203	$83,203	$72,963
FTEs	537 5	0 0	543 0	543 0	517 0
Average	$172	$0	$153	$153	$141

II. Funding Table (cont'd):

	FY 1995 Comparable Appropriation	FY 1996 Appropriation	Real & Com Adjustments	FY 1996 Comparable Appropriation	FY 1997 Request
Rocky Flats:					
Salaries and Benefits	$22,100	$0	$23,664	$23,664	$24,310
Travel	1,715	0	1,438	1,438	1,419
Support Services	5,913	0	22,508	22,508	17,313
Other Related Expenses	1,162	0	1,218	1,218	1,201
Total	$30,890	$0	$48,828	$48,828	$44,243
FTEs	276.6	0.0	290.0	290.0	286.0
Average	$112	$0	$168	$168	$155
Savannah River:					
Salaries and Benefits	$39,698	$0	$42,196	$42,196	$41,784
Travel	1,790	0	1,491	1,491	1,417
Support Services	36,615	0	22,736	22,736	14,681
Other Related Expenses	948	0	9,097	9,097	8,649
Total	$79,051	$0	$75,520	$75,520	$66,531
FTEs	526.5	0.0	548.0	548.0	521.0
Average	$150	$0	$138	$138	$128
Subtotal, Field Offices					
Salaries and Benefits	$189,493	$0	$202,733	$202,733	$206,590
Travel	11,538	0	9,865	9,865	9,600
Support Services	106,514	0	93,825	93,825	64,586
Other Related Expenses	26,863	0	36,255	36,255	35,478
Total	$334,408	$0	$342,678	$342,678	$316,254
FTEs	2,477.7	0.0	2,582.0	2,582.0	2,510.0
Average	$135	$0	$133	$133	$126
Headquarters:					
Salaries and Benefits	$38,761	$0	$45,803	$45,803	$48,639
Travel	4,323	0	3,245	3,245	2,966
Support Services	109,191	0	$64,025	64,025	55,070
Other Related Expenses	9,979	0	10,002	10,002	11,248
Total	$162,254	$0	$123,075	$123,075	$117,923
FTEs	720.4	0.0	676.0	676.0	618.0
Average	$225	$0	$182	$182	$191

B. Funding Table (cont'd):

	FY 1995 Comparable Appropriation	FY 1996 Appropriation	Real & Com Adjustments	FY 1996 Comparable Appropriation	FY 1997 Request
Subtotal, Federal Staff					
Salaries and Benefits	$228,254	$0	$248,536	$248,536	$255,229
Travel	15,861	0	13,110	13,110	12,566
Support Services	215,705	0	157,850	157,850	119,656
Other Related Expenses	36,842	0	46,257	46,257	46,726
Total	$496,662	$0	$465,753	$465,753	$434,177
FTEs	3,198.1	0.0	3,258.0	3,258.0	3,128.0
Average	$155	$0	$143	$143	$139
Technical Leadership Development Program:					
Salaries and Benefits	$792	$0	$1,698	$1,698	$2,277
Travel	351	0	753	753	1,112
Support Services	0	0	0	0	0
Other Related Expenses	357	0	765	765	841
Total	$1,500	$0	$3,216	$3,216	$4,230
FTEs	21.0	0.0	0.0	0.0	0.0
Average	$71	$0	$0	$0	$0
Buyouts					
HQ's	$0	$0	$2,190	$2,190	$2,957
Field	0	0	2,592	2,592	5,147
Total	$0	$0	$4,782	$4,782	$8,104
Anticipated #	0	0	111	111	222
Total Environmental Management:					
Salaries and Benefits	$229,046	$0	$255,016	$255,016	$265,610
Travel	16,212	0	13,863	13,863	13,678
Support Services	215,705	0	157,850	157,850	119,656
Other Related Expenses	37,199	0	47,022	47,022	47,567
Total	$498,162	$0	$473,751	$473,751	$446,511
FTEs	3,219.1	0.0	3,258.0	3,258.0	3,128.0
Average	$155	$0	$145	$145	$143

Public Law 95-91; Department of Energy Organization Act of 1977
Public Law 104-46, Energy and Water Development Appropriations Act, Fiscal Year 1996
Public Law 104-106, National Defense Authorization Act of FY 1996

III. PROGRAM PERFORMANCE SUMMARY:

FY 1995 Measurable Performance Activities:

- Provided funding to support 720 FTEs at Headquarters, whose primary responsibility was to determine and implement policy for the Environmental Management Program.
- Provided funding to support 2,478 FTEs at the 10 Operations Offices and two Environmental Technology Centers. These FTEs provided oversight of the contractor workforce responsible for performing environmental management activities for the Department of Energy.
- Performed technical, managerial and administrative activities at Headquarters and operations offices.
- Provided funding for salaries, benefits, travel, training and educational activities in support of the Department of Energy Technical Leadership Development Program (TLDP) interns (21 FTEs utilized).

FY 1996 Measurable Performance Activities:

- Implement a major reorganization of the EM Headquarters personnel which flattens the organization by increasing the ratio of supervisors to employees from 1:4 to 1:10, meeting the Department's goal.
- Provide funding to support 676 FTEs at Headquarters, whose primary responsibility is to determine and implement policy for the EM Program.
- Provide funding to support 2,582 FTEs at the 10 Operations Offices and two Environmental Technology Centers. These FTEs provide oversight of the contractor workforce that supports environmental management activities for the Department of Energy.
- Continue to reduce support services at the headquarters and the field. Headquarters support services have been reduced by 41 percent from FY 1995 levels. Support services at the Operations Offices have been reduced by 12 percent since FY 1995.
- Provide funding for early retirement buyout bonuses and lump sum annual leave payments for 111 employees.
- Provide funding for salaries, benefits, travel, training and educational activities in support of the Department of Energy TLDP interns

FY 1997 Measurable Performance Activities:

- Provide funding for salaries, benefits, travel and other related expense to support 618 FTEs at Headquarters, a reduction of 58 FTEs from FY 1996 FTE levels (excluding TLDPs and Buyouts) ..... $ 62,853
- Provide funding for salaries, benefits, travel and other related expenses to support 2,510 FTEs at the 10 Operations Offices and two Environmental Technology Centers, a reduction of 72 from FY 1996 FTE levels. 251,668

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FY 1997 Measurable Performance Activities: (Cont'd)

• Continue to reduce support services at Headquarters, achieving a 50 percent reduction since FY 1995	55,070
• Provide technical support services to the operations offices, achieving a 39 percent reduction since FY 1995	64,586
• Provide funding for salaries, benefits, travel, training and educational activities in support of the Technical Leadership Development Program (TLDP) interns	4,230
• Provide funding for early retirement buyout bonuses and lump sum annual leave payments for 222 employees	8,104
Total FY 1997	$ 446,511

IV. Explanation of Funding Changes FY 1996 to FY 1997:

A net increase of $6,693,000 for salaries and benefits is the result of a decrease of $13,101,000 due to a reduction of 159 FTEs; an increase of $2,826,000 to support the transfer of 29 FTEs from the Bureau of Mines at the Environmental Technology Research Center; and an increase of $11,286,000 due to anticipated Federal pay raise, promotions and associated personnel benefits for 3,128 FTEs. An additional increase of $5,682,000 results from the reduced availability of unobligated balances in FY 1997 to support this account. Unobligated balances of $13,343,000 were available in FY 1996 and this balance will be reduced to $7,661,000 in FY 1997.

A decrease of $544,000 in travel for EM employees reflects the decrease in the size of the EM Federal workforce

An increase of $3,322,000 for the planned costs of buyouts is necessary to meet Strategic Alignment Initiative (SAI) end of year on board ceilings. SAI personnel ceilings necessitate the separation of 222 personnel in FY 1997.

A net decrease of $38,194,000 in support service contracts is the result of a $8,955,000 decrease in Headquarters support services and a $29,239,000 decrease in field support services contracts consistent with Congressional and Departmental initiatives. These reductions reflect a 14 percent and 31 percent decrease respectively.

An increase of $1,014,000 is needed to support the Department of Energy TLDP Interns. These interns are placed in rotational assignments across the Department and do not necessarily support the EM program.

Other related expenses have increased by $469,000 due, in part, to the increase of the EM's contribution to the Human Resources Working Capital Fund, which provides administrative support to Headquarters personnel previously funded by Departmental Administration. The increase reflects the allocation of common administrative services more appropriately to the recipient organizations.

V. Explanation of Average FTE Costs:

ALBUQUERQUE

	FY 1995	FY 1996	FY 1997
Funding	$19,505	$20,217	$19,565
FTEs	173.1	196.0	184.0
Cost Per FTE	$113	$ 103	$ 106

- Salaries and benefits have increased by $3,300 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Defense Programs is the landlord for the Albuquerque Operations Office. Funding for building maintenance, rents, communications, utilities, computer/video support, printing and graphics, copying, postage, and supplies are funded by Defense Programs.
- Support service contracts have decreased by $202,000, or $100 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses provides funding for costs associated with permanent changes of station, training and other contractual services. These costs have remained constant on an FTE basis.
- FTEs have decreased by 12 due to the Strategic Alignment Initiative downsizing efforts.

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CARLSBAD AREA OFFICE

	FY 1995	FY 1996	FY 1997
Funding	$5,075	$5,540	$6,265
FTEs	58.0	63.0	63.0
Cost Per FTE	$ 88	$ 88	$ 99

- Salaries and benefits have increased by $3,300 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Other related expenses includes funding for training activities. The cost per FTE has increased by $8,200 in FY 1997 due to the move of the Waste Isolation Pilot Project personnel to GSA space. The increase is related to rental payments and communications and utility costs. These expenses were funded by Defense Programs in FY 1996 and prior years.

CHICAGO

	FY 1995	FY 1996	FY 1997
Funding	$12,927	$9,201	$8,550
EML Funding	(3,000)	(1,400)	(3,000)
FTEs	91.7	102.0	104.0
EML FTEs	(40)	(44)	(52)
Cost Per FTE	$ 141	$ 90	$ 82

- Salaries and benefits have increased by $3,400 per FTE (excluding EML) in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Energy Research is the landlord for the Chicago Operations Office. Funding for building maintenance, rents, communications, utilities, computer/video support, printing and graphics, copying, postage, and supplies are funded by Energy Research.
- In FY 1997, EM will assume responsibility for the Environmental Measurements Laboratory (EML) from Energy Research. The EML is a government owned, government operated environmental research laboratory whose mission is to respond to the Department and other federal and international agencies regarding quality assurance, environmental and national security issues, and to conduct research on radioactive and other energy related pollutants that impact on human health and the environment. Energy Research will provide $3,600,000 for 36 FTEs in FY 1997. EM will assume full funding responsibility in the outyears.
- In FY 1996, EM's contribution for the EML was $1,400,000 which funds approximately 17.5 of the 44 FTEs associated with this program. EM will contribute $3,000,000 in FY 1997. Reimbursements from the Office of Nonproliferation and National Security, the U.S. Air Force and the U.S. Nuclear Regulatory Commission will also be used to fund this program.
- Support service contracts have decreased by $1,962,000, or $19,300 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses provides funding for training and other contractual services.
- FTEs have increased by 2 as EM provides additional support for the EML.

IDAHO

	FY 1995	FY 1996	FY 1997
Funding	$30,961	$28,992	$27,409
FTEs	280.8	272.0	259.0
Cost Per FTE	$ 110	$ 107	$ 106

- Salaries and benefits have increased by $3,500 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- All costs associated with rent, utilities, maintenance, computers, telecommunications are currently funded from the Departmental Administration account. These costs were approximately $23,300 per FTE in FY 1995. Due to reductions in the Departmental Administration funding, printing and supply costs will be allocated to the EM programs in FY 1996 and FY 1997.
- Support service contracts have decreased by $1,244,000, or $4,200 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses includes costs for the M&O contractor integration work provided to the Idaho Operations Office for activities relating to administrative activities. These costs for these activities have decreased since FY 1995.
- FTEs have decreased by 13 due to the Strategic Alignment Initiative downsizing efforts.

MORGANTOWN ENERGY TECHNOLOGY CENTER (METC)

	FY 1995	FY 1996	FY 1997
Funding	$ 3,772	$ 2,458	$2,332
FTEs	14.1	14.0	14.0
Cost Per FTE	$ 268	$ 176	$ 167

- Salaries and benefits have increased by $3,500 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Support service contracts have decreased by $175,000, or $12,500 per FTE, as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses includes costs for other contractual services.

NEVADA

	FY 1995	FY 1996	FY 1997
Funding	$ 6,972	$ 7,395	$ 7,495
FTEs	57.3	61.0	60.0
Cost Per FTE	$ 122	$ 121	$ 125

- Salaries and benefits have increased by $3,000 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Support service contracts have decreased by $317,000, or $5,000 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses includes funding for training and other contractual services. The increase between FY 1995 and FY 1996 is due to additional funding needed to support EM program laboratory advisors at a cost of $19,900 per FTE in FY 1996. This program was initiated in FY 1996 to provide Stakeholder involvement into site planning activities. An additional $6,100 per FTE is needed to support the laboratory advisors in FY 1997.
- FTEs have decreased by 1 due to the Strategic Alignment Initiative downsizing efforts.

OAK RIDGE

	FY 1995	FY 1996	FY 1997
Funding	$20,380	$20,835	$19,477
FTEs	155.7	171.0	156.0
Cost Per FTE	$ 131	$ 122	$ 125

- Salaries and benefits have increased by $3,300 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Support service contracts have decreased by $260,000, or $300 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses provides support for rental payments, communications and utilities, computer/video support, printing, training, equipment purchases and maintenance, supplies and other contractual services.
- FTEs have decreased by 15 due to the Strategic Alignment Initiative downsizing efforts.

Explanation of Average FTE Costs; Program Direction -- Defense (Continued)

OHIO

	FY 1995	FY 1996	FY 1997
Funding	$22,703	$29,505	$28,450
FTEs	225.8	235.0	235.0
Cost Per FTE	$ 101	$ 126	$ 121

- Salaries and benefits have increased by $3,400 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Support service contracts have decreased by $1,854,000, or $7,900 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses includes funding for GSA rental payments, communications & utilities, computer/video support, training, equipment maintenance, supplies and materials, equipment and other contractual support. Other contractual services have increased by $8,200 per FTE in FY 1996 due to the additional support services necessary to support the Mound Site.
- FY 1995 includes 39 FTEs transferred from Defense Programs for the Mound Site, however, no funding was transferred for these FTEs. This explains the lower cost per FTE in FY 1995.

OAKLAND

	FY 1995	FY 1996	FY 1997
Funding	$ 9,482	$10,346	$9,385
FTEs	78.9	85.0	80.0
Cost Per FTE	$ 120	$ 122	$ 117

- Salaries and benefits have increased by $3,200 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Support service contracts have decreased by $739,000, or $7,600 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses provides support for rent, communications & utilities, computer/video support, training, operation and maintenance of facilities, supplies and other contractual services.
- FTEs have decreased by 5 due to the Strategic Alignment Initiative downsizing efforts.

Explanation of Average FTE Costs; Program Direction -- Defense (Continued)

PITTSBURGH ENERGY TECHNOLOGY CENTER (PETC)

	FY 1995	FY 1996	FY 1997
Funding	$ 332	$ 638	$3,589
FTEs	1.7	2.0	31.0
Cost Per FTE	$ 195	$ 319	$ 116

- Salaries and benefits have increased by $3,600 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- EM has gained 29 FTEs in FY 1997 due to the transfer of Environmental Technology Research Group from the U.S. Bureau of Mines.
- Travel costs are estimated to be $21,000 per FTE in FY 1996 and $5,000 per FTE in FY 1997. The high cost of travel is due to the travel requirements of the two PETC personnel that support the Western Environmental Technology Office (WETO) located in Butte, Montana. In addition to the travel of the two WETO FTEs, funds are budgeted for the travel of PETC Federal support personnel to cover the costs of necessary travel to Butte, Montana. Additional travel funding has been provided in FY 1997 for 29 FTEs transferred from the U.S. Bureau of Mines.
- Support service contracts have decreased by $50,000 for the WETO in FY 1997 as the program continues to review these requirements. This contract secures specialized technical support to integrate WETO research, development, demonstration, and testing activities in its mission to develop technology for all facets of its environmental mission. This includes conducting infrastructure and system studies. The support service contract in FY 1995 was in place for just the last three months of the fiscal year, resulting in lower costs in FY 1995.
- Other related expenses provides for supplies in FY 1996 and FY 1997. FY 1995 costs were higher due to the costs associated with moving one FTE from HQ to Montana.

RICHLAND

	FY 1995	FY 1996	FY 1997
Funding	$92,358	$83,203	$72,963
FTEs	537.5	543.0	517.0
Cost Per FTE	$ 172	$ 153	$ 141

RICHLAND (Cont'd)

- Salaries and benefits have increased by $3,300 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Support service contracts have decreased by $9,186,000, or $15,400 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses provides for rent, communications and utilities, printing & reproduction, supplies and other contractual services.
- FTEs have decreased by 26 due to the Strategic Alignment Initiative downsizing efforts.

ROCKY FLATS

	FY 1995	FY 1996	FY 1997
Funding	$30,890	$48,828	$44,243
FTEs	276.6	290.0	286.0
Cost Per FTE	$112	$ 168	$ 155

- Salaries and benefits have increased by $3,400 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Support service contracts have decreased by $5,195,000, or $17,100 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce. Responsibility for Rocky Flats transferred to EM in FY 1996 from Defense Programs. The increase in support service cost from FY 1995 to FY 1996 reflects this transfer of responsibility.
- Other related expenses provides for training and other contractual services.
- FTEs have decreased by 4 due to the Strategic Alignment Initiative downsizing efforts.

SAVANNAH RIVER

	FY 1995	FY 1996	FY 1997
Funding	$79,051	$75,520	$66,531
FTEs	526.5	548.0	521.0
Cost Per FTE	$ 150	$ 138	$ 128

- Salaries and benefits have increased by $3,200 per FTE in FY 1997 for a planned cost of living increase and associated increase in benefits.
- Support service contracts have decreased by $8,055,000, or $13,300 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- Other related expenses provides for communications and utilities, printing and reproduction, training, supplies and other contractual services. These activities were funded by Defense Programs in FY 1995. The landlord responsibility for this program has transferred to EM in FY 1996, which drives the increase in other related expenses over the FY 1995 level.
- FTEs have decreased by 27 due to the Strategic Alignment Initiative downsizing efforts.

HEADQUARTERS

	FY 1995	FY 1996	FY 1997
Funding	$162,254	$123,075	$117,923
FTEs	720.4	676.0	618.0
Cost Per FTE	$ 225	$ 182	$191

- Salaries have increased by $10,900 per FTE. This increase is, in part, the result of $3,600 per FTE for a planned cost of living increase and associated increase in benefits. The balance of the increase, $7,300 per FTE, is related to the reduced use of prior year balances in FY 1997. The Headquarters costs per FTE are based on the new budget authority, reduced through the use of unobligated balances. However, the magnitude of the offset varies in each year. In FY 1996 a total of $13,343,000 was used to offset the budget request, which resulted in an apparent lower cost per FTE. In FY 1997 the use of unobligated balances has been reduced to $7,661,000, a decrease of $5,682,000 from the FY 1996 level. This creates the appearance of a large increase in the cost per FTE from FY 1996 to FY 1997. In FY 1995 $23,121,000 of unobligated balances were available to support salaries and benefits.

HEADQUARTERS (Cont'd)

- Support service contracts have decreased by $8,955,000, or $5,000 per FTE, in FY 1997 as the program continues to review these requirements. The majority of the remaining support service costs provides technical expertise not available within the Federal workforce.
- The increase in other related expenses in FY 1996 and FY 1997 reflect EM's contribution to the Human Resources working capital fund and increased the cost per FTE by $3,400. The working capital fund provides support for the operation and maintenance of facilities in the Washington D.C. Metropolitan Area, printing, copying, computer/video support, utilities, telephones, DCAA audits, contract closeouts, supplies and postage. These services were previously funded from within the Departmental Administration account. The working capital fund was established by the Office of Human Resources to allocate costs of common administrative services to the recipient organizations.
- FTEs have decreased by 58 due to the Strategic Alignment Initiative downsizing efforts.

TECHNICAL LEADERSHIP DEVELOPMENT PROGRAM (TLDP)

	FY 1995	FY 1996	FY 1997
Funding	$1,500	$3,216	$4,230
FTEs	210	0	0
Cost Per FTE	$ 71	$ N/A	$ N/A

- The Technical Development Leadership Program (Interns) provides funding in support of this Departmental program. Funds are provided for 34 interns located at Headquarters and Operations Offices in FY 1996. There are no FTE ceilings associated with this program. The increase in FY 1997 assumes an additional 10 interns will be allocated to EM for funding purposes.

BUYOUTS

	FY 1995	FY 1996	FY 1997
Funding	$ 0	$4,782	$8,104
Anticipated #	N/A	111	222

- In order to meet the Departments Strategic Alignment Initiative, the FY 1997 request includes funding for early retirement buyout bonuses and lump sum annual leave payments to support 222 FTEs. Headquarters must reduce its workforce by 81 employees during FY 1997, and a total of $2,957,000 is necessary to cover the costs associated with these separations. This is an increase of $767,000 over FY 1996 costs. The ten Operations Offices will reduce their workforce by 141 in FY 1997, and a total of $5,147,000 is necessary to cover the costs associated with these separations. This is an increase of $2,555,000 over FY 1996.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT

PROGRAM DIRECTION

End of Year On-Board Ceilings / Full-Time Equivalents

	FY 1995 Comparable Usage	Projected End of Year On-Board			FTE Ceilings		
		FY 1996	FY 1997	Change	FY 1996	FY 1997	Change
Albuquerque	173.1	192.0	171.0	(21.0)	196.0	184.0	(12.0)
Carlsbad	58.0	63.0	63.0	0.0	63.0	63.0	0.0
Chicago	91.7	102.0	104.0	2.0	102.0	104.0	2.0
Idaho	280.8	265.0	250.0	(15.0)	272.0	259.0	(13.0)
METC	14.1	14.0	14.0	0.0	14.0	14.0	0.0
Nevada	57.3	61.0	60.0	(1.0)	61.0	60.0	(1.0)
Oak Ridge	155.7	163.0	145.0	(18.0)	171.0	156.0	(15.0)
Ohio	225.8	235.0	234.0	(1.0)	235.0	235.0	0.0
Oakland	78.9	85.0	76.0	(9.0)	85.0	80.0	(5.0)
PETC	1.7	2.0	31.0	29.0	2.0	31.0	29.0
Richland	537.5	524.0	509.0	(15.0)	543.0	517.0	(26.0)
Rocky Flats	276.6	294.0	285.0	(9.0)	290.0	286.0	(4.0)
Savannah River	526.5	549.0	495.0	(54.0)	548.0	521.0	(27.0)
Subtotal, Field Offices	2,477.7	2,549.0	2,437.0	(112.0)	2,582.0	2,510.0	(72.0)
Headquarters	720.4	648.0	567.0	(81.0)	676.0	618.0	(58.0)
TLDPs	21.0	0.0	0.0	0.0	0.0	0.0	0.0
Total, Environmental Management	3,219.1	3,197.0	3,004.0	(193.0)	3,258.0	3,128.0	(130.0)

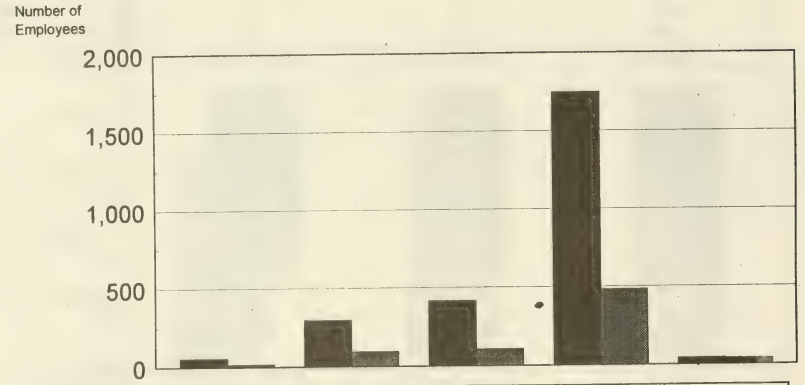
2501

Environmental Management Program
Program Direction
Object Class Summary

		FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997
Direct Obligations						
11.1	Full time permanent	$206,932	$0	$215,513	$0	$216,852
11.3	Other than full-time	2,353	0	3,303	0	3,324
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total Personnel Compensation	$209,285	$0	$218,816	$0	$220,176
12.1	Civilian personnel benefits	42,882	0	46,038	0	47,544
13.0	Benefits to Former Personnel	1,144	0	2,775	0	5,550
21.0	Travel and Transportation of Persons	16,212	0	13,863	0	13,678
22.0	Transportation of things	2,119	0	1,203	0	950
23.1	Rental Payments to GSA	1,971	0	2,369	0	2,483
23.2	Rental Payments to Others	1,785	0	1,382	0	1,888
23.3	Communications, utilities & miscellaneous charges	2,625	0	4,366	0	4,717
24.0	Printing and Reproduction	971	0	1,122	0	1,182
25.1	Advisory & assistance services	215,705	0	157,850	0	119,656
25.2	Other services	18,786	0	26,938	0	25,622
25.3	Purchases of goods & services from Gov't accounts	1,649	0	2,453	0	2,983
25.7	Operations and maintenance of facilities	3,693	0	3,730	0	3,987
26.0	Supplies & materials	2,138	0	3,901	0	3,448
31.0	Equipment	318	0	288	0	308
99.0	Subtotal, Direct Obligations	$521,283	$0	$487,094	$0	$454,172
	Reimbursable Program	0	0	0	0	0
99.9	Total, Obligations	$521,283	$0	$487,094	$0	$454,172
	Recover of prior year obligations	0	0	0	0	0
	Unobligated Balance avail, start of year	23,121	0	13,343	0	7,661
	Unobligated Balance avail, end of year	13,343	0	7,661	0	0
	Budget Authority	$498,162	$0	$473,751	$0	$446,511

717

EM Field and Headquarters Grade Structure



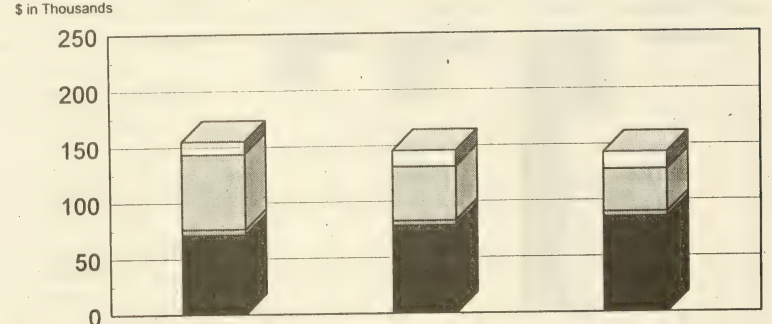
	GS/1-4	GS/5-8	GS/9-12	GS/13-15	SES/OTHER
FIELD	53	294	416	1,745	40
HQS	15	94	106	480	36
TOTAL EMPLOYEES	68	388	522	2,225	76

HQS = 731; FIELD = 2,548; TOTAL = 3,279

As Of January 96

EM Cost Profile Per FTE

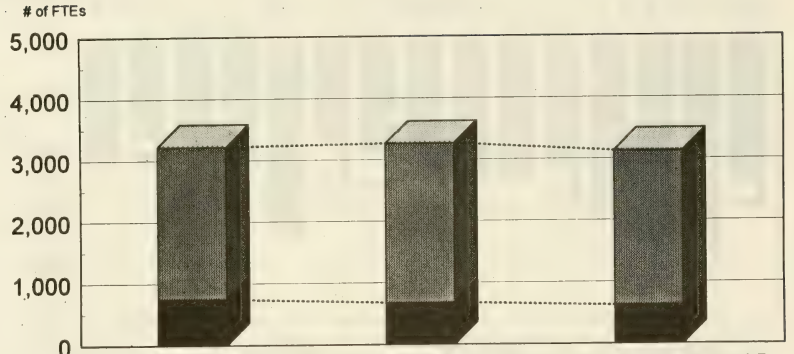
FY 1995 - FY 1997



	FY 1995 Comp.	FY 1996 Comp.	FY 1997
Salary & Benefits	71.2	78.3	84.9
Travel	5.0	4.3	4.4
Support Services	67.0	48.4	38.2
Other Expenses	11.6	14.4	15.2
Total Cost Per FTE	154.8	145.4	142.7

2504

FTE Levels By Fiscal Year

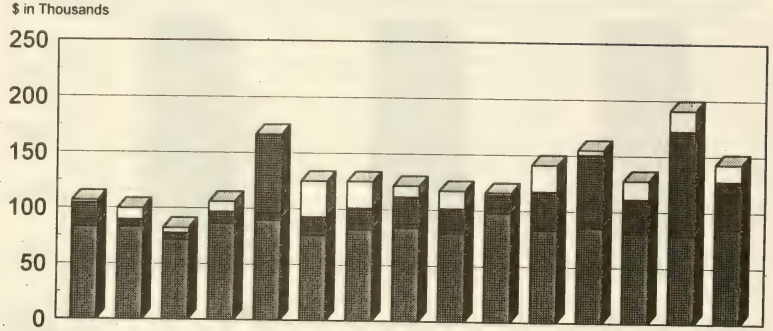


	FY 1995 Comp.	FY 1996 Comp.	FY 1997
HQ FTEs	741.4	676.0	618.0
Field FTEs	2,477.7	2,582.0	2,510.0
Total EM	3,219.1	3,258.0	3,128.0

Headquarters FTEs include TLDP Interns in FY 1995.

FY 1997 Estimated Cost

Per FTE By Site

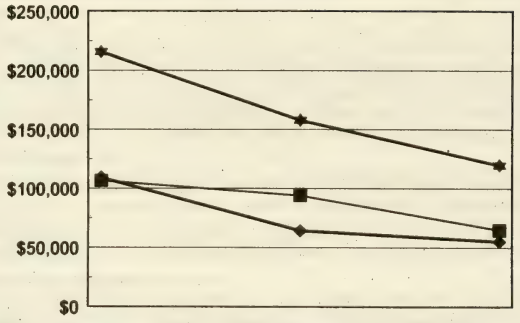


	AL	CAO	CH	ID	METC	NV	OR	OH	OK	PETC	RL	RF	SR	HQ	Total EM
Salary & Benefits	82.6	82.6	71.1	86.0	89.2	76.5	81.6	83.4	79.1	97.4	83.0	85.0	80.2	78.7	84.9
Travel	6.6	6.6	5.6	3.4	6.7	3.6	5.2	3.3	3.5	5.1	2.6	5.0	2.7	4.8	4.4
Support Services	15.0	0.0	0.8	7.3	69.2	12.6	13.9	24.5	18.5	11.3	31.7	60.5	28.2	89.1	38.2
Other Expenses	2.1	10.2	4.7	9.1	1.4	32.2	24.1	9.9	16.2	2.0	23.9	4.2	16.6	18.2	15.2
Cost Per FTE	106.3	99.4	82.2	105.8	166.5	124.9	124.8	121.1	117.3	115.8	141.2	154.7	127.7	190.8	142.7

2506

Support Services Activities

($ in Thousands)



	FY 1995 Comp.	FY 1996 Comp.	FY 1997 Request
Field	$106,514	$93,825	$64,586
Headquarters	$109,191	$64,025	$55,070
Total	$215,705	$157,850	$119,656

2507

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE

PROGRAM MISSION

The Department of Energy (DOE) defense mission resulted in the development of numerous facilities throughout the complex dedicated to the production and storage of nuclear materials for various weapons systems. Starting in the late 1980's and continuing through the present time, the majority of these production facilities have been shut down. Initially, many production operations were temporarily suspended with the intention of returning to production in the near-term. With the end of the Cold War, it has become clear that most of these former defense production facilities are no longer required for their original mission, and they have been declared surplus.

As a result of these changes, the Department's mission has shifted from the production of nuclear weapons to the clean up of the former production complex. The physical and chemical nature of the various nuclear materials remaining in the facilities since the production effort ended are not appropriate for long-term storage and in their current form represent an unacceptable level of risk to site workers, the public, and the environment. The Office of Nuclear Material and Facility Stabilization was established to manage the activities related to surplus weapons complex facilities and to ensure the nuclear materials are placed in a form suitable for longer-term storage and to deactivate the facilities. The Department must stabilize these materials (i.e., produce a safer chemical and/or physical form of the material) to reduce the level of potential risks such as exposure to radiation, contamination of people and the environment, and criticality events.

Milestones have been established for the stabilization of nuclear materials, including various forms of plutonium, uranium, special isotopes, and spent nuclear fuel by the year 2002. These activities have been prioritized so that the most urgent risks are addressed first. Further, as nuclear materials are placed in a more stable (i.e., lower risk) form, the physical plant (i.e., buildings, production systems, machinery, and utilities) can be deactivated. Deactivation is the term used for a number of activities needed to prepare the facilities for decommissioning. Examples of deactivation work include de-energizing utilities, draining plumbing lines, removing fuel rods from nuclear reactors, and dismantling unsafe portions of equipment and buildings. The funds requested in this budget address the requirements to meet these essential stabilization milestones. It is also envisioned that the mission of the Office of Nuclear Material and Facility Stabilization's program mission, including deactivation of facilities, can be completed in the 2005 - 2010 timeframe.

In FY 1994 the Defense Nuclear Facilities Safety Board recommended (Recommendation 94-1) DOE develop a plan, on a high priority basis, to stabilize plutonium and other nuclear materials into forms suitable for safe "interim" storage. The Nuclear Materials Stabilization Task Group (NMSTG) is moving forward with a program to integrate complex-wide initiatives to manage nuclear materials stabilization activities. Through this program, the Department has committed to the stabilization of materials presenting the most urgent risk by May 1997, with lower risk materials being stabilized by May 2002, and all excess plutonium metal and oxide packaged for long term. The NMSTG has taken an integrated Department-wide approach to stabilization issues; evaluating and integrating facility stabilization capabilities; procuring standardized equipment to support plutonium oxide stabilization and packaging for long-term storage; and, focusing research and development efforts on the technical challenges facing stabilization.

PROGRAM MISSION - NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE (Continued)

Not surprisingly, the types and forms of materials present in former defense production facilities, as well as highly specialized equipment, represent safety and security concerns beyond those risks discussed above. The requirements for providing safeguards and security to prevent people from getting hurt and material and equipment from being diverted (e.g. by terrorist groups) are very costly both in human resources and dollars. An active program has been established to identify, plan, and accomplish projects that will safely store nuclear materials in a manner that will reduce these funding requirements. Specific guidance for Environmental Management's (EM) Safeguards and Security program is provided to ensure optimal, cost-efficient implementation of DOE safeguards and security policy. This responsibility has been realigned to the Office of Nuclear Material and Facility Stabilization, to align the funding and accomplishment of these tasks within the same office.

In the Office of Nuclear Material and Facility Stabilization's FY 1997 Congressional Budget submission, the following program activities have been realigned within the overall EM organization:

- o All landlord activities, the Mound and Pinellas sites, have been transferred to the new Office of Site Operations.
- o All Program Direction and support service contractor activities have been transferred to the Program Direction account being managed by the EM Office of Budget.
- o The entire Rocky Flats program has been transferred to the Office of Environmental Restoration.
- o The Spent Nuclear Fuel program has been transferred from the Office of Waste Management.
- o A portion of the EM Safeguards and Security program has been transferred from the Analysis, Education and Risk Management budget.
- o The C,P,R Reactors at Savannah River have been transferred to the Office of Environmental Restoration.

Some of the most noteworthy facilities and materials under the Office of Nuclear Material and Facility Stabilization program include:

- o 10 nuclear reactors
- o 7 high level radioactive processing buildings
- o 3,000 surplus buildings
- o 2,700 metric tons heavy metal of spent nuclear fuel
- o 38.8 million liters of acid containing radioactive contaminates
- o Several thousand kilograms of plutonium in various forms
- o 10,000 packages of plutonium materials and waste
- o 75 million curies of cesium and strontium

As these facilities and materials are stabilized and deactivated, the associated costs are greatly reduced. We are proposing legislation for privatization of facility deactivation, which will authorize contractor financing of deactivation projects, with the contractor being paid from savings in maintenance cost to the government. This could greatly reduce the outyear maintenance mortgage for our facilities, which will otherwise be several billion dollars over the next five years, by enabling earlier facility deactivation than would be possible based on budgetary restrictions.

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PROGRAM MISSION - NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE (Continued)

The surveillance and maintenance and stabilization/deactivation activities, including those associated with the reduction of the mortgage, are conducted with full participation of involved stakeholders. The interests of stakeholder groups encompass environmental protection, individual safety and proper management of surplus facilities located close to large metropolitan areas. These interests focus on activities with major facilities located in California, Idaho, South Carolina, Tennessee, and Washington.

The GOALS of the Nuclear Material and Facility Stabilization Program are to:

- o Reduce risks:
  - -- by aggressively stabilizing nuclear materials as implemented in response to Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1.
  - -- by addressing the need for DOE to stabilize and remediate certain liquids and solids containing fissile materials and other radioactive substances located in spent fuel storage pools, reactor basins, reprocessing canyons, and various other facilities once used for processing and nuclear weapons manufacture.
  - -- by the timely deactivation of surplus, contaminated facilities.
- o Lower the mortgage cost of doing business.
- o Complete the mission of the Nuclear Material and Facility Stabilization program in the FY 2005-2010 timeframe.

Examples of lowering the mortgage cost of doing business:

- o A requested increase of $39,000,000 for spent nuclear fuel to accelerate the path forward. To achieve the $350 million over 10 years savings over the original path forward, a front-end increase is necessary to enable timely completion of the new milestones.
- o We are spending $6,200,000 in FY 1997 to clean up and consolidate the Savannah River heavy water inventories. Once these efforts are complete (FY 2001) and the facilities are deactivated, outyear costs will be reduced about $10,000,000 annually.
- o By spending approximately $13,000,000 in FY 1997 and $9,500,000 in FY 1998 on B-Plant deactivation activities, surveillance and maintenance at the plant will be reduced from approximately $20,000,000 per year to less than approximately $2,000,000 per year. The plant then can be transferred to Environmental Restoration at the end of FY 1998, 4 years early, resulting in a savings of approximately $70,000,000.
- o By spending approximately $11,000,000 to complete deactivation activities in FY 1997, surveillance and maintenance at the PUREX facility will be reduced from approximately $24,000,000 per year to less than $2,000,000 per year. The facility can then be transferred to Environmental Restoration one year ahead of schedule, resulting in a savings of approximately $60,000,000.

PERFORMANCE MEASURES:

The following performance measures are utilized by both Headquarters and field personnel to evaluate the effectiveness and efficiency of the accomplishments of the Nuclear Material and Facility Stabilization program:

- o Accomplish 100 percent of the FY 1997 nuclear material stabilization commitments and other risk reduction activities.
- o Accomplish deactivation projects within (or better than) cost and schedule baselines.
- o Reduce the total number and associated cost of surveillance and maintenance actions.
- o Accomplish 100 percent of established milestones.

PROGRAM MISSION - NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE (Continued)

FISCAL YEAR 1997 BUDGET STRUCTURE

The Office of Nuclear Material and Facility Stabilization's program budget is contained in two appropriation accounts. The first appropriation, the Defense Environmental Restoration and Waste Management, focuses on activities related to the management and stabilization of weapons related facilities. The second appropriation, Energy Supply, Research and Development, focuses on DOE activities independent of the weapons related program.

Within each appropriation, the Nuclear Material and Facility Stabilization program accomplishes its mission by funding activities through various budget functions. The Defense Environmental Restoration and Waste Management appropriation funds activities in the following five categories:

1. Program Integration:

   Funds all activities that accomplish transition program and deactivation project planning. This category focuses on the planning, development, and generation of transition programs and deactivation project documentation and plans.

2. Surveillance and Maintenance:

   Funds all activities that maintain surplus and transferred buildings with required functions (i.e., surveillance and maintenance of fire, safety and life support systems, building support, and essential services as specified by Operational Safety Requirements). This category includes system/facility monitoring, corrective and preventive maintenance.

3. Stabilization/Deactivation Actions:

   Funds all activities that stabilize nuclear materials or that remove surplus materials, chemicals, and supplies including removal of hazardous, mixed, and radioactive wastes. These actions are undertaken to reduce or eliminate the risks posed by these materials and to reduce the cost of surveillance and maintenance.

4. Program Support:

   Funds all activities that provide technical expertise support to assist the Federal staff with its line management and oversight functions.

5. Spent Nuclear Fuel:

   Funds all activities associated with the management of DOE Spent Nuclear Fuel (SNF). These actions would include all activities that will stabilize vulnerable SNF, and store the SNF in a safe condition which is compatible with the permanent repository for an interim period of time (assumed to be 40 years). Eventually, all DOE SNF will be transferred to the permanent repository.

The FY 1997 Office of Nuclear Material and Facility Stabilization's budget reflects a scope of work utilizing prior year uncosted balances.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Dollars in thousands)

PROGRAM FUNDING PROFILE

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE

Subprogram	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Program Integration	$ 28,627	$ 40,375	$-12,814	$ 27,561	$ 2,336
Surveillance and Maintenance	183,644	744,743	-192,036	552,707	463,120
Stabilization/Deactivation Actions	25,099	264,504	-141,366	123,138	163,203
Program Support	552	117,450	-109,007	8,443	2,394
Landlord	0	183,653	-183,653	0	0
Program Direction	0	96,257	-96,257	0	0
Change in Inventories	-73	126	-126	0	-100
Spent Nuclear Fuel	114,703	0	+148,001	148,001	187,711
Savannah River Site b/	580,148	0	0	0	0
Subtotal, Operations and Maintenance	932,700	1,447,108	-587,258	859,850	818,664
Construction	10,835	114,746	-58,852	55,894	85,157
TOTAL	$ 943,535	$1,561,854	$ -646,110	$ 915,744	$ 903,821

Public Law Authorizations

95-95, Department of Energy Organization Act (1977)
104-46, The Energy and Water Development Appropriations Act, Fiscal Year 1996

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a/ Comparability transfer of activities to the Office of Nuclear Material and Facility Stabilization (NMFS) program (+$225,086); comparability transfer of activities to other Environmental Management Programs ($-832,681); use of new budget authority to offset the use of prior year uncosted balance reduction ($-50,821); reprogramming approval ($+12,306)

b/ Transfer of the Savannah River Site program from Defense Programs not reflected by Nuclear Material and Facility Stabilization budget functions.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Dollars in thousands)

PROGRAM FUNDING BY SITE

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
ALBUQUERQUE OPERATIONS OFFICE					
Los Alamos National Laboratory (NM)	$ 0	$ 8,675	$ +7,493	$ 16,168	$ 16,000
Albuquerque Operations Office (NM)	0	3,064	-3,009	55	0
Pinellas Plant (FL)	0	44,309	-44,309	0	0
Subtotal, ALBUQUERQUE	0	$ 56,048	$ -39,825	$ 16,223	$ 16,000
CHICAGO OPERATIONS OFFICE					
Argonne National Laboratory (East) (IL)	$ 0	$ 77	$ -21	$ 56	$ 0
Brookhaven National Laboratory (IL)	0	124	0	124	0
Chicago Operations Office (IL)	0	107	-107	0	0
Subtotal, CHICAGO	$ 0	$ 308	$ -128	$ 180	$ 0
IDAHO OPERATIONS OFFICE					
Lockheed Idaho Technology Co. (ID)	$ 136,887	$ 128,168	$ +3,400	$ 131,568	$ 137,555
Idaho Operations Office (ID)	2,213	2,661	-4,373	-1,712	0
Subtotal, IDAHO	$ 139,100	$ 130,829	$ -973	$ 129,856	$ 137,555
OAKLAND OPERATIONS OFFICE					
Oakland Operations Office (CA)	$ 234	$ 2,023	$ -398	$ 1,625	$ 0
Subtotal, OAKLAND	$ 234	$ 2,023	$ -398	$ 1,625	$ 0
OAK RIDGE OPERATIONS OFFICE					
Oak Ridge National Laboratory (TN)	$ 1,900	$ 0	$ +1,280	$ 1,280	$ 1,380
K-25 Site (TN)	0	576	-25	551	357
Oak Ridge Operations Office (TN)	0	347	-197	150	0
Subtotal, OAK RIDGE	$ 1,900	$ 923	$ +1,058	$ 1,981	$ 1,737

PROGRAM FUNDING BY SITE - NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE (Continued)

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
OHIO FIELD OFFICE					
Mound Plant (OH)	$ 0	$ 52,528	$ -52,528	$ 0	$ 0
Ohio Field Office (OH)	0	3,615	-3,615	0	0
Subtotal, OHIO	$ 0	$ 56,143	$ -56,143	$ 0	$ 0
RICHLAND OPERATIONS OFFICE					
Pacific Northwest Laboratory (WA)	$ 25	$ 2,500	$ -2,500	$ 0	$ 0
Hanford Site (WA)	212,785	167,809	+127,812	295,621	312,566
Richland Operations Office (WA)	-75	49,367	-47,667	1,700	0
Subtotal, RICHLAND	$ 212,735	$ 219,676	$ +77,645	$ 297,321	$ 312,566
ROCKY FLATS FIELD OFFICE					
Rocky Flats Plant (CO)	$ 0	$ 384,043	$-384,043	$ 0	$ 0
Rocky Flats Field Office (CO)	0	39,128	-39,128	0	0
Subtotal, ROCKY FLATS	$ 0	$ 423,171	$-423,171	$ 0	$ 0
SAVANNAH RIVER OPERATIONS OFFICE					
Savannah River Site (SC)	$ 588,489	$ 649,023	$-186,878	$ 462,145	$ 433,569
Subtotal, SAVANNAH RIVER	$ 588,489	$ 649,023	$-186,878	$ 462,145	$ 433,569
HEADQUARTERS					
Headquarters (D.C.)	$ 1,077	$ 23,710	$ -17,297	$ 6,413	$ 2,394
TOTAL, NUCLEAR MATERIAL AND FACILITY STABILIZATION	$ 943,535	$1,561,854	$-646,110	$ 915,744	$ 903,821

a/ Comparability transfer of activities to the Office of Nuclear Material and Facility Stabilization (NMFS) program (+$225,086); comparability transfer of activities to other Environmental Management Programs ($-832,681); use of new budget authority to offset the use of prior year uncosted balance reduction ($-50,821); reprogramming approval ($+12,306)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Dollars in thousands)

PROGRAM FUNDING BY FUND TYPE

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE

Field Offices	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
ALBUQUERQUE OPERATIONS OFFICE					
Operating Expenses	$ 0	$ 54,798	$ -38,575	$ 16,223	$ 16,000
General Plant Projects	0	1,250	-1,250	0	0
Subtotal, ALBUQUERQUE	$ 0	$ 56,048	$ -39,825	$ 16,223	$ 16,000
CHICAGO OPERATIONS OFFICE					
Operating Expenses	$ 0	$ 308	$ -128	$ 180	$ 0
IDAHO OPERATIONS OFFICE					
Operating Expenses	$ 122,498	$ 81,170	$ +26,944	$ 108,114	$ 117,502
Capital Equipment	9,371	12,228	-6,730	5,498	1,848
General Plant Projects	1,442	7,000	-3,650	3,350	3,120
Construction	5,789	30,431	-17,537	12,894	15,085
Subtotal, IDAHO	$ 139,100	$ 130,829	$ -973	$ 129,856	$ 137,555
OAKLAND OPERATIONS OFFICE					
Operating Expenses	$ 234	$ 2,023	$ -398	$ 1,625	$ 0
OAK RIDGE OPERATIONS OFFICE					
Operating Expenses	$ 1,900	$ 893	$ +1,058	$ 1,951	$ 1,737
Capital Equipment	0	30	0	30	0
Subtotal, OAK RIDGE	$ 1,900	$ 923	$ +1,058	$ 1,981	$ 1,737

PROGRAM FUNDING BY FUND TYPE - NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE (Continued)

Field Offices	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
OHIO FIELD OFFICE					
Operating Expenses	$ 0	$ 54,258	$ -54,258	$ 0	$ 0
General Plant Projects	0	1,000	-1,000	0	0
Construction	0	885	-885	0	0
Subtotal, OHIO	$ 0	$ 56,143	$ -56,143	$ 0	$ 0
RICHLAND OPERATIONS OFFICE					
Operating Expenses	$ 204,350	$ 204,136	$ +42,430	$ 246,566	$ 229,661
Capital Equipment	2,439	7,716	-75	7,641	18,006
General Plant Projects	900	2,324	-2,210	114	2,727
Construction	5,046	5,500	+37,500	43,000	62,172
Subtotal, RICHLAND	$ 212,735	$ 219,676	$ +77,645	$ 297,321	$ 312,566
ROCKY FLATS FIELD OFFICE					
Operating Expenses	$ 0	$ 358,281	$ -358,281	$ 0	$ 0
Capital Equipment	0	3,100	-3,100	0	0
General Plant Projects	0	1,390	-1,390	0	0
Construction	0	60,400	-60,400	0	0
Subtotal, ROCKY FLATS	$ 0	$ 423,171	$ -423,171	$ 0	$ 0
SAVANNAH RIVER OPERATIONS OFFICE					
Savannah River Site Transfer	$ 521,686	$ 0	$ 0	$ 0	$ 0
Operating Expenses	6,062	579,605	-145,969	433,636	411,648
Capital Equipment	30,041	34,369	-18,690	15,679	7,620
General Plant Projects	15,000	17,519	-4,689	12,830	6,401
Construction	15,700	17,530	-17,530	0	7,900
Subtotal, SAVANNAH RIVER	$ 588,489	$ 649,023	$ -186,878	$ 462,145	$ 433,569
HEADQUARTERS					
Operating Expenses	$ 1,077	$ 23,710	$ -17,297	$ 6,413	$ 2,394
TOTAL, NUCLEAR MATERIAL AND FACILITY STABILIZATION	$ 943,535	$1,561,854	$ -646,110	$ 915,744	$ 903,821

a/ Comparability transfer of activities to the Office of Nuclear Material and Facility Stabilization (NMFS) program (+$225,086); comparability transfer of activities to other Environmental Management Programs ($-832,681); use of new budget authority to offset the use of prior year uncosted balance reduction ($-50,821); reprogramming approval ($+12,306)

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

PROGRAM FUNDING BY FUNCTION

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
ALBUQUERQUE OPERATIONS OFFICE					
Program Integration	$ 0	$ 1,000	$ -1,000	$ 0	$ 0
Surveillance and Maintenance	0	223	0	223	0
Stabilization/Deactivation Actions	0	25,950	-10,005	15,945	16,000
Program Support	0	55	0	55	0
Landlord	0	25,811	-25,811	0	0
Program Direction	0	3,009	-3,009	0	0
Subtotal, ALBUQUERQUE	0	56,048	-39,825	16,223	16,000
CHICAGO OPERATIONS OFFICE					
Program Integration	0	201	-21	180	0
Program Direction	0	107	-107	0	0
Subtotal, CHICAGO	0	308	-128	180	0
IDAHO OPERATIONS OFFICE					
Program Integration	21,563	101	-1,817	-1,716	0
Surveillance and Maintenance	61,234	78,757	-3,650	75,107	74,729
Stabilization/Deactivation Actions	5,029	10,271	0	10,271	13,523
Landlord	0	37,327	-37,327	0	0
Program Direction	0	4,373	-4,373	0	0
Spent Nuclear Fuel	51,274	0	+46,194	46,194	49,303
Subtotal, IDAHO	139,100	130,829	-973	129,856	137,555

PROGRAM FUNDING BY FUNCTION - NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
OAKLAND OPERATIONS OFFICE					
Program Integration	$ 234	$ 0	$ 0	$ 0	$ 0
Stabilization/Deactivation Actions	0	1,500	0	1,500	0
Program Direction	0	398	-398	0	0
Program Support	0	125	0	125	0
Subtotal, OAKLAND	234	2,023	-398	1,625	0
OAK RIDGE OPERATIONS OFFICE					
Program Integration	0	576	-25	551	357
Program Support	0	150	0	150	0
Spent Nuclear Fuel	1,900	0	+1,280	1,280	1,380
Program Direction	0	197	-197	0	0
Subtotal, OAK RIDGE	1,900	923	+1,058	1,981	1,737
OHIO FIELD OFFICE					
Program Integration	0	6,301	-6,301	0	0
Surveillance and Maintenance	0	22,600	-22,600	0	0
Stabilization/Deactivation Actions	0	21,742	-21,742	0	0
Landlord	0	1,885	-1,885	0	0
Program Direction	0	3,615	-3,615	0	0
Subtotal, OHIO	0	56,143	-56,143	0	0
RICHLAND OPERATIONS OFFICE					
Program Integration	5,791	7,296	-100	7,196	1,979
Surveillance and Maintenance	131,980	80,337	+30,825	111,162	98,511
Stabilization/Deactivation Actions	19,570	54,689	-13,426	41,263	37,176
Program Support	0	33,232	-31,532	1,700	0
Landlord	0	18,159	-18,159	0	0
Program Direction	0	25,963	-25,963	0	0
Spent Nuclear Fuel	55,467	0	+136,000	136,000	175,000
Change in Inventories	-73	0	0	0	-100
Subtotal, RICHLAND	212,735	219,676	+77,645	297,321	312,566

PROGRAM FUNDING BY FUNCTION - NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments a/	FY 1996 Comparable Appropriation	FY 1997 Budget Request
ROCKY FLATS OFFICE					
Rocky Flats Transition - DP	$ 0	$ 0	$ 0	$ 0	$ 0
Program Integration	0	0	0	0	0
Surveillance and Maintenance	0	147,000	-147,000	0	0
Stabilization/Deactivation Actions	0	119,134	-119,134	0	0
Program Support	0	21,526	-21,526	0	0
Landlord	0	117,783	-117,783	0	0
Program Direction	0	17,602	-17,602	0	0
Inventories	0	126	-126	0	0
Subtotal, ROCKY FLATS	0	423,171	-423,171	0	0
SAVANNAH RIVER OPERATIONS OFFICE					
Savannah River Transition - DP	581,913	0	0	0	0
Program Integration	514	24,900	-3,550	21,350	0
Surveillance and Maintenance	0	430,350	-51,241	379,109	312,865
Stabilization/Deactivation Actions	0	65,318	-10,159	55,159	98,004
Program Support	0	45,810	-45,810	0	0
Landlord	0	48,810	-48,810	0	0
Program Direction	0	33,835	-33,835	0	0
Spent Nuclear Fuel	6,062	0	+6,527	6,527	22,700
Subtotal, SAVANNAH RIVER	588,489	649,023	-186,878	462,145	433,569
HEADQUARTERS					
Program Integration	525	7,158	-7,158	0	0
Program Support	552	16,552	-10,139	6,413	2,394
Subtotal, HEADQUARTERS	1,077	23,710	-17,297	6,413	2,394
TOTAL, NUCLEAR MATERIAL AND FACILITY STABILIZATION	$ 943,535	$1,561,854	$ -646,110	$ 915,744	$ 903,821

a/ Comparability transfer of activities to the Office of Nuclear Material and Facility Stabilization (NMFS) program (+$225,086); comparability transfer of activities to other Environmental Management Programs ($-832,681); use of new budget authority to offset the use of prior year uncosted balance reduction ($-50,821); reprogramming approval ($+12,306)

U.S. DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT

NUCLEAR MATERIAL AND FACILITY STABILIZATION
(Dollars in Thousands)

ALBUQUERQUE

I. Mission Supporting Goals and Objectives

The Albuquerque Operations Office manages seven sites in five states. The Office of Nuclear Material and Facility Stabilization program coordinates stabilization activities with the Albuquerque Operations Office at the Los Alamos National Laboratory (LANL) in New Mexico.

The LANL is a transuranic waste generator; it is responsible for certifying and storing transuranic waste on site. LANL treats some hazardous waste on site, and design is underway for a hazardous waste treatment facility.

LANL has been designated the lead laboratory for research and development efforts to support the DOE response to Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1. In this capacity, LANL provides solutions to complex-wide technical and operational issues associated with stabilization and storage of plutonium and other nuclear materials.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Surveillance and Maintenance	0	223	0	-223	-100
Stabilization/Deactivation Actions	0	15,945	16,000	+55	0
Program Support	0	55	0	-55	-100
TOTAL, Albuquerque	$ 0	$16,223	$16,000	$ -223	-1

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE (Continued)

III. Performance Summary - Albuquerque (Continued)

FY 1995 Accomplishments
- No Activity.

FY 1996 Accomplishments (To Date and Planned)
- Conduct surveillance and maintenance for Technical Area (TA) 21 facilities.
- Develop long-term storage packaging criteria for plutonium.
- Provide research and development (R&D), engineering, safety analysis, procedures, and training support for the plutonium liquids stabilization effort at Rocky Flats.
- Conduct R&D on solid residue treatment alternatives, including salt distillation and magnetic separation.
- Implement a core technology program which supports the Office of Environmental Management's nuclear material stabilization mission.
- Provide technical expertise to program managers, Office of Nuclear Material and Facility Stabilization program reviews.

FY 1997 Planned Accomplishments
- Conduct R&D programs to define standards, procedures and methods for plutonium storage, packaging, surveillance and monitoring ..... $ 3,670
- Conduct R&D on stabilization process alternatives for plutonium oxide-like materials, solutions, salts, and combustibles 4,730
- Continue development of core technologies related to the fundamental chemistry and materials issues involved in nuclear materials stabilization 7,600

Total FY 1997, Albuquerque ..... $ 16,000

Explanation of Funding Changes FY 1996 to FY 1997:
- FY 1997 funding is not being requested for surveillance and maintenance and program support categories due to more effective prioritization of programmatic activities.

Major Issues:
- None.

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CHICAGO

I. Mission Supporting Goals and Objectives

The Chicago Operations Office manages the Nuclear Material and Facility Stabilization program activities at the Argonne National Laboratory-East (ANL-E) and the Brookhaven National Laboratory (BNL).

Argonne National Laboratory-East occupies a 1,700-acre tract of land located approximately 22 miles southwest of downtown Chicago in DuPage County, Illinois. The ANL-E is committed to conducting its research activities in a manner that complies fully with applicable Federal and State regulations governing worker health and safety and protection of the environment.

Brookhaven National Laboratory (BNL) is a multipurpose research and development laboratory located in central Suffolk County on Long Island about 60 miles east of New York City. The site occupies about 8.3 square miles, which is mostly wooded, except for a developed area of about 2.6 square miles. To fulfill its role as a multiprogram laboratory, BNL directs scientific and technical efforts, including low and high energy physics, life sciences, and nuclear medicine research. To support the research programs, BNL operates the Alternating Gradient Synchrotron, the National Synchrotron Light Source, and the High-Flux Beam Reactor. The BNL is located over an Environmental Protection Agency-designated, sole-source drinking water aquifer.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 0	$ 180	$ 0	$ -180	-100
TOTAL, Chicago	$ 0	$ 180	$ 0	$ -180	-100

III. Performance Summary

FY 1995 Accomplishments

o No Activity.

III. Performance Summary - Chicago (Continued)

FY 1996 Accomplishments (To Date and Planned)
o Develop site-wide transition strategies and site priorities, planning, budgeting, and performance measurement documentation.

FY 1997 Planned Accomplishments
o None.

Total FY 1997, Chicago ..... $ 0

Explanation of Funding Changes FY 1996 to FY 1997:
o FY 1997 planned facility transition activities are delayed due to risk-based prioritization ($-180).

Major Issues:
o None.

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IDAHO

I. Mission Supporting Goals and Objectives

The Idaho National Engineering Laboratory (INEL), established in 1949 as the National Reactor Testing Station, is situated on more than 890 square miles of the Snake River Plain in southeastern Idaho. Over the years, 52 reactors have been constructed and operated at the INEL. There are nine primary facilities at the INEL as well as administrative, engineering, and research laboratories in Idaho Falls, approximately 50 miles east of the site.

The Idaho Chemical Processing Plant (ICPP) was built in the 1950's to store and reprocess spent nuclear fuel from Government-owned reactors. Fuel receipts have averaged 40 metric tons total mass per year for the past 10 years. The facility has recovered more than $1 billion worth of highly enriched uranium, which was returned to the Government stockpile. In addition, an innovative high-level liquid waste process, known as calcining, was developed at ICPP.

The 200-acre plant underwent an ambitious modernization during the 1980's, when most major facilities were replaced by safer, cleaner, and more efficient facilities.

In the spring of 1992, the decision to end spent fuel reprocessing eliminated a major mission for the plant. It also prompted a lay-up of the Fuel Processing Restoration project and created the need to develop a comprehensive facility transition plan.

The Nuclear Material and Facility Stabilization program is responsible for facility deactivation and ICPP programs at the INEL. The deactivation program creates and maintains an inventory of contaminated and uncontaminated surplus facilities. It also conducts deactivation projects in the surplus facilities to transition the facilities into a safe, stable, low surveillance and maintenance cost position.

The ICPP program provides general facilities infrastructure support which includes long range planning, facility services, line item construction projects, and general purpose capital equipment to support deactivation, special nuclear fuel activities at the ICPP facility.

The Plutonium Focus Area is established to help identify and recommend solutions to both site specific and complex-wide technical and operations issues associated with plutonium stabilization and storage. Research and development activities directed toward resolution of stabilization and storage issues are coordinated through this focus area.

The spent nuclear fuel (SNF) program receives and stores Naval spent nuclear fuel and other DOE assigned spent nuclear fuel. Current focus of the program is on placing all spent fuel into interim dry storage and preparing the fuel for permanent disposition in a geologic repository. The INEL is the lead laboratory in coordinating the DOE complex wide national program.

II. Funding Schedule - Idaho (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 21,563	$ -1,716	$ 0	$ +1,716	+100
Surveillance and Maintenance	61,234	75,107	74,729	-378	-1
Stabilization/Deactivation Actions	5,029	10,271	13,523	+3,252	+32
Spent Nuclear Fuel	51,274	46,194	49,303	+3,109	+7
TOTAL, Idaho	$139,100	$129,856	$137,555	$ +7,699	+6

III. Performance Summary

FY 1995 Accomplishments

- Completed the deactivation of the CPP-601/602 main reprocessing facilities including uranium accountability, stabilizing 12,000 liters of liquid uranium inventory.
- Completed equipment flushing and surplus chemical disposition in the Flourinel Dissolution Process.
- Provided surveillance and maintenance for 10 surplus radioactively contaminated facilities.
- Demolished six surplus buildings at Test Area North and Central Facilities Area.
- Completed conceptual design for Rover uranium removal to remove a nuclear criticality hazard.
- Provided steam for 130 buildings, distributed 147,000 KWH/day of electricity, provided 2.5 million gallons of water, and performed maintenance on 80 pieces of major equipment and 350 instrumentation systems for the Idaho Chemical Processing Plant (ICPP).
- Provided facilities maintenance (8,000 orders/year), work control, and general services such as custodial, training, roads and grounds upkeep, and warehousing to 1,300 people and 130 buildings at the ICPP.
- Provided engineering, Environmental Safety and Health (ES&H) and Quality Assurance (QA) support to ICPP such as processing over 4,000 drawings, completing 4 steam safety and 10 fire system analyses, conducting documented surveillance of 130 buildings and 1,700 structures, conducting 400 design reviews and 10 audits, calibrating 500 instruments/dosimeters, and analyzing 1,700 bioassays, 1,200 whole body counts, and 170 dose assessments.
- Completed General Plant Project construction items to maintain a safe and cost efficient infrastructure at the ICPP such as ICPP Plant Street lighting replacement, health and safety upgrade to the ICPP cafeteria, potable water storage tank, and acid pump installation in the Liquid Effluent Treatment and Disposal Building.
- Completed an Operational Readiness Review for the CPP-651 Annulus Storage Area and initiated an operations/safeguards inventory of special nuclear material in the Unirradiated Fuel Storage Facility's south vault to ensure safe storage and management of the materials.
- Completed transfer of the second 189 fuel handling units (FHU) from CPP-603 north and middle basins to CPP-666, initiated Experimental Breeder Reactor-II (EBR-II) fuel transfers from CPP-603 south basin, and thereby met two major court order milestones.
- Closed out four unresolved safety questions (USQ) at CPP-603, and thereby restored all CPP-603 fuels to the current authorization basis.

III. Performance Summary - Idaho (Continued)

FY 1995 Accomplishments (Continued)

- o Completed video inspections of potentially degraded spent nuclear fuels including EBR-II, TORY-IIA, Buffalo Pulstar and GETR fuels; repackaged and/or re-stored TORY-IIA and EBR-II fuels in the CPP-603 south basin.
- o Continued surveillance and maintenance of building CPP-666, CPP-749, CPP-603, and Test Area North (TAN) spent fuel storage facilities.
- o Received and safely stored 60 Naval fuel shipments and 12 shipments of Advanced Test Reactor (ATR) fuel.
- o Continued support of the re-racking projects in building CPP-666 pools 1, 5, and 6.
- o Completed design of the dry canning facility needed to dry and repackage some Spent Nuclear Fuel (SNF) located in the CPP-603 south basin.
- o Completed inspection of the first generation dry storage wells at building CPP-749.
- o Completed phase I of seismic evaluation of the Irradiated Fuel Storage Facility (IFSF).
- o Issued three versions of the INEL SNF Management Plan to assist with response to the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1 and provided the INEL with an overall plan for management of DOE-owned SNF.
- o Evaluated repository technology through the FY 1994 Performance Assessment, FY 1994 Waste Form Product Characteristics, and the FY 1995 Criticality Protocol.
- o Developed a National SNF Program documentation including the Program Plan, Strategic Plan, Technology Integration Plan, Office of Civilian Radioactive Waste Management (OCRWM) Interface, program directives and guidance, and management procedures.
- o Developed: an integrated SNF database system (ISNFDS) and published a manual; a System Engineering (SE) Management Plan; and an Office of Spent Nuclear Fuel Management Public Participation Plan and drafted INEL SNF Stakeholder Participation Plan.
- o Developed and obtained concurrence throughout the DOE complex on proposed path forward for Resource Conservation and Recovery Act (RCRA) applicability. Provided RCRA report to the Environmental Protection Agency (EPA).
- o Implemented, and maintained the SNF Commitment Tracking System (CTS).
- o Completed the Interim Dry Storage Plan which included transportation infrastructure requirements; led the Interim Dry Storage Working Group.
- o Completed the preliminary repository disposition requirements and performance assessment studies.
- o Addressed OCRWM issues resolution on first repository and provided technical leadership for EM-OCRWM subgroups.
- o Researched Nuclear Regulatory Commission (NRC) requirements and impact of compliance and requirements.
- o Issued the final SNF Programmatic Environmental Impact Statement (PEIS) and Record of Decision (ROD) and final Foreign Research Reactor (FRR) EIS.
- o Supported multi-purpose canister (MPC) activities.
- o Negotiated the Idaho Consent Order/Settlement Agreement on SNF between Idaho, DOE, and the Navy.
- o Started feasibility studies on development of the dual purpose canister dry storage system and a fuel characterization/drying/loading station to load SNF into the dry storage canisters.
- o Collected information and developed a prioritized list stating what SNF will be placed into dry storage first.

III. Performance Summary - Idaho (Continued)

FY 1996 Accomplishments (To Date and Planned)

- o Initiate deactivation of the Rover Dry End Process including the removal of up to 150 kilograms of uranium in graphite ash from the cells in order to remove the nuclear criticality risk.
- o Continue to provide required surveillance and maintenance for 10 surplus radioactive contaminated facilities.
- o Continue to provide steam for 130 buildings, distribute 147,000 KWH/day of electricity, provide 2.5 million gallons of water, and perform maintenance on 80 pieces of major equipment and 350 instrumentation systems for ICPP.
- o Continue to provide facilities maintenance (8,000 orders/year), work control, and general services such as: custodial, training, roads and grounds upkeep, and warehousing to 1,300 people and 130 buildings at the ICPP.
- o Continue to provide engineering, ES&H and Quality Assurance support to ICPP such as: processing over 4,000 drawings, completing 4 steam safety and 10 fire system analyses, conducting documented surveillance of 130 buildings and 1,700 structures, conducting 400 design reviews and 10 audits, calibrating 500 instruments/dosimeters, and analyzing 1,700 bioassays, 1,200 whole body counts, and 170 dose assessments.
- o Complete General Plant Project construction items to maintain a safe and cost efficient infrastructure, such as the CPP-602 Analytical Laboratory Upgrade, ICPP Sewer Line Extension, CPP-633 Paint Shop, and the CPP Paving and Road Replacement projects.
- o Complete the operational inventory of the special nuclear material in the Unirradiated Fuel Storage Facility (CPP-651) while continuing activities for the storage consolidation of materials at the INEL.
- o Initiate Title Design for the ICPP Electrical and Utility System Upgrade project and continue design of the Security Facility Upgrades Project.
- o Remove all SNF from the CPP-603 north and middle basins and continue removal of spent fuel from the south basin completing a major court ordered milestone three months ahead of schedule.
- o Continue surveillance and maintenance of CPP-603, CPP-666, CPP-749, and the TAN fuel storage facilities.
- o Begin funding Public Service Company of Colorado's (PSC) surveillance and maintenance costs for the Fort Saint Vrain (FSV) Irradiated Spent Fuel Storage Installation (ISFSI). Submit an application to the NRC to transfer the NRC operating license from PSC to DOE.
- o Continue receiving and storing Naval, Advanced Test Reactor (ATR), and other assigned fuels.
- o Perform Non-Destructive Examination (NDE) inspections on several samples of EBR-II canned SNF.
- o Develop a working system for NDE equipment and a prototype SNF NDE pulse-echo system for in-basin examination of canned SNF to determine as-stored condition. Complete feasibility testing of a SNF NDE digital radiography system to complement information obtained from the pulse-echo system. Test vacuum drying methods for heavily corroded SNF and effects of water-logged SNF during vacuum drying.
- o Continue to support the CPP-666 re-racking projects. Install and begin using pool 1 racks. Store pool 6 racks on site and prepare for installation.
- o Initiate repackaging of Naval fuels from aluminum baskets into stainless steel packages to allow for more efficient storage in more durable, corrosion resistant baskets in CPP-666.
- o Install and begin operation of the SNF canning station in the IFSF handling cave. Begin placing Advanced Reactivity Measurement Facility/Coupled Fast Reactivity Measurement Facility (ARMF)/(CFRMF) fuels into the dry IFSF.
- o Continue program coordination functions such as maintenance of the INEL SNF Management Plan, fuel performance assessments and waste form product characteristics, and the SNF characterization information database.

III. Performance Summary - Idaho (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)

- Continue to update, publish and distribute: 1) National SNF Program documentation, including the Program Plan, Strategic Plan, Technology Integration Plan, OCRWM interface, program directives and guidance, and management procedures; 2) Interim Dry Storage Plan which includes transportation infrastructure requirements. Coordinate activities associated with the technical working group.
- Continue to develop repository criteria and performance assessment studies and an integrated National Environmental Policy Act (NEPA) compliance strategy.
- Complete the FRR EIS ROD.
- Initiate involvement in other NEPA activities such as Multi-Purpose Canister EIS and Repository EIS.
- Continue to coordinate stakeholder participation at the INEL and at the complex-wide level in support of the HQ-Spent Nuclear Fuel Management Office. Finalize an INEL SNF Plan for stakeholder participation; continue to support multi-purpose canister activities.
- Continue coordination of issue resolution/positioning for matters of SNF disposition and RCRA applicability path forward. Achieve final resolution and concurrence within DOE and EPA on RCRA applicability to DOE-owned SNF. Issue final report.
- Continue to address OCRWM issues resolution, particularly those associated with EIS, licensing and technical issues; maintain formal interface with OCRWM and remain active in working groups.
- Conduct NRC reviews and determine applicability to interim storage facilities.
- Qualify other sites to RE-033P, conduct Quality Assurance (QA) training, continue implementation and maintenance of QA program, perform assessments and working group coordination.
- Expand implementation of the SNF CTS to cover the entire DOE-SNF complex.
- Complete feasibility studies and initiate conceptual design for the dual purpose canister dry storage system and a fuel characterization/drying/loading station to load SNF into the dry storage canisters.
- Complete conceptual design for dual purpose canisters.
- Deploy EBR-II NDE system and determine water content in cans suspected to contain water. Determine fuel condition within the cans by detection of sludge in the cans.
- Obtain radionuclide content and decay heat numbers for a majority of INEL SNF types.
- Continue SNF drying studies; obtain results on drying aluminum plate fuel with heavy amounts of corrosion product and silt present.
- Complete test plan for material interaction tests in a radiation field to support future loading of highly degraded SNF into dual purpose canisters.
- Prepare material interaction coupons for installation into the ICPP IFSF at CPP-603.

III. Performance Summary - Idaho (Continued)

FY 1997 Planned Accomplishments	
Surveillance and Maintenance	
o Provide ongoing surveillance and maintenance for industrial safety structural and equipment preventative and corrective maintenance, procedure and quality support self assessments, nuclear criticality and contamination control within the deactivating facilities	$ 5,731
o Complete 110 continuous surveillance, preventive, and corrective maintenance activities to ensure the safe storage of special nuclear materials at the Unirradiated Fuel Storage Facility	852
o Continue to provide steam for 130 buildings at ICPP, distribute 147,000 KWH/day of electricity, provide 2.5 million gallons of water, and perform maintenance on 80 pieces of major equipment and 350 instrumentation systems	20,300
o Continue to provide facilities maintenance (8,000 orders/year), work control, and general services such as custodial, training, roads and grounds upkeep, and warehousing to 1,300 people and 130 buildings at the ICPP	6,443
o Continue to provide engineering support to ICPP such as processing over 4,000 drawings, completing 4 steam safety and 10 fire system analyses, maintaining 16,700 controlled distribution copies, and completing 6 facility models	10,858
o Provide on-going ES&H and Quality Assurance support to ICPP such as conducting documented surveillance of 130 buildings and 1,700 structures, conducting 400 design reviews and 10 audits, calibrating 500 instruments/dosimeters, and analyzing 1,700 bioassays, 1,200 whole body counts, and 170 dose assessments	9,734
o Initiate construction to replace deteriorating and insufficient systems: the ICPP Electrical and Utility System Upgrade project (to be completed December 2001), and the ICPP Security Facilities Upgrade Project (to be completed September 1998)	16,685
o Complete General Plant Project construction items to maintain a safe and cost efficient operation, such as the replacement of boiler feed water piping at the ICPP and consolidation of ICPP Utility Controls	4,126
Stabilization/Deactivation Actions	
o Complete 40 percent of the Rover deactivation project which includes removal of vessels, equipment, and special nuclear material from the Material Handling Cave to accomplish nuclear material stabilization commitments at Idaho and remove the nuclear criticality hazard	7,223
o Complete risk-based deactivation/closure of the Old Waste Calcining Facility at ICPP	2,300
o Provide management, administrative, and planning activities for the Plutonium Focus Area to address plutonium stabilization and storage issues	2,500
o Coordinate department-wide research and development programs in the areas of plutonium storage standards, stabilization processes, packaging, surveillance and monitoring, and core technologies	1,500

III. Performance Summary - Idaho (Continued)

FY 1997 Planned Accomplishments (Continued)

Spent Nuclear Fuel	
o Continue surveillance and maintenance of CPP-666, CPP-603, CPP-749, and TAN SNF storage facilities to ensure safe storage of SNF	$ 10,100
o Obtain the NRC license for operation of the FSV ISFSI. Transfer operation of this facility from PSC to the DOE	1,500
o Continue fuel movements out of the CPP-603 south basin and into storage in either CPP-666 or the IFSF to provide compliant storage for this fuel	6,285
o Continue receipt and storage of Naval, ATR, and other DOE assigned SNF	8,975
o Provide support activities for the SNF program such as necessary operator training, quality assurance engineering and inspections, corrosion monitoring program, core team planning and review of maintenance work orders, and instrument monitoring	4,479
o Continue to support the re-racking projects for the pools in CPP-666. Place pool 6 racks into operation	2,000
o Begin the CPP-666 water quality system major maintenance and equipment replacement work	3,500
o Continue to support the research and development efforts for dual purpose canisters and project support necessary to place a dual purpose canister spent fuel storage facility into operation by July 1, 2003	3,464
o Develop and implement policies, strategies, and programs to safely, effective, and efficiently manage current and future inventories of DOE-owned SNF and FRR SNF; identify and integrate requirements to assure safe existing storage, resolve vulnerabilities, achieve safe and secure interim storage, and prepare for ultimate disposition in a geologic repository; integrate program activities including the conduct of assessments, evaluations, and technical issues; participate in providing the program resources needed to assist in implementing the national SNF program; establish the INEL as the Department's Lead Laboratory for SNF which will direct the research, development and testing of treatment, shipment, and disposal technologies for all DOE-owned SNF	9,000
Total FY 1997, Idaho	$ 137,555

Explanation of Funding Changes FY 1996 to FY 1997:

- o The deactivation funding increase of $3,252,000 is a result of the INEL being designated as the lead laboratory for plutonium focus area. The focus area activities will help identify and recommend solutions to technical and operational issues associated with plutonium stabilization and storage identified by the Defense Nuclear Facilities Safety Board, Recommendation 94-1.
- o The increase in funding of $3,109,000 for the Spent Nuclear Fuel program is necessary to support the increased transfers of spent nuclear fuel from the Underwater Fuel Receiving and Storage Facility (Building 603) to the Future Analytical Support Team/Flourinel Dissolution Process (FAST/FDP) Storage Facility (Building 666). The number of anticipated transfers is approximately 540 in FY 1997, an increase of 340 from approximately 200 in FY 1996.

Major Issues:

- o None.

NUCLEAR MATERIAL AND FACILITY STABILIZATION
(Dollars in Thousands)

OAKLAND

I. Mission Supporting Goals and Objectives

The Oakland Operations Office manages operations at the Lawrence Livermore National Laboratory (LLNL).

The LLNL main site is an approximately one-square-mile facility located on flat land in the Livermore-Amador Valley, approximately 40 miles east of San Francisco, on the eastern border of the city of Livermore. This site has an interim status Resource Conservation and Recovery Act (RCRA) Part B Permit for a treatment, storage, and disposal facility for hazardous, mixed, and low-level waste. Past operations involving the handling of storage of hazardous materials at the main site have resulted in the release and subsequent migration of contaminates into soil and groundwater. The Office of Nuclear Material and Facility Stabilization's mission is to maintain six sodium facilities in a safe and sound condition while reducing their annual surveillance and maintenance costs.

These facilities perform a number of diverse research and development activities.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 234	$ 0	$ 0	$ 0	0
Stabilization/Deactivation Actions	0	1,500	0	-1,500	-100
Program Support	0	125	0	-125	-100
TOTAL, Oakland	$ 234	$ 1,625	$ 0	$ -1,625	-100

III. Performance Summary

FY 1995 Accomplishments
- o Provided required transition and deactivation planning for the transition of surplus facilities.

FY 1996 Accomplishments (To Date and Planned)
- o Procure capital equipment necessary to support the plutonium metal and oxides stabilization project.
- o Provide technical expertise to program managers in the analysis, development and integration of the Federal Facility Compliance requirements.

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE (Continued)

III. Performance Summary - Oakland (Continued)

FY 1997 Planned Accomplishments

o None.

Total FY 1997, Oakland ..... $ 0

Explanation of Funding Changes FY 1996 to FY 1997:

o A decrease in deactivation funding of $1,500,000 is due to the completion of capital equipment purchases for the plutonium metal and oxide stabilization project.

o FY 1997 funding for program support is not being requested due to more effective prioritization of programmatic activities.

Major Issues:

o None.

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE
(Dollars in Thousands)

OAK RIDGE

I. Mission Supporting Goals and Objectives

The Oak Ridge Operations Office manages the Oak Ridge National Laboratory (ORNL), the surplus enrichment plants at Oak Ridge, Tennessee, and the surplus high assay enrichment plant at Portsmouth, Ohio. The Oak Ridge Reservation is located 20 miles west of Knoxville, in eastern Tennessee.

The ORNL occupies several sites and covers approximately 2,900 acres in Melton and Bethel Valleys, 10 miles southwest of the city of Oak Ridge, Tennessee. The ORNL's mission is to conduct applied research and development (R&D) in support of DOE programs in fusion, fission, conservation, fossil, and other energy technologies and to perform basic research in selected areas of the physical and life sciences. The Office of Nuclear Material and Facility Stabilization's mission is to maintain more than 50 buildings in a safe and sound condition while reducing their annual surveillance and maintenance costs.

The mission of the Oak Ridge Spent Nuclear Fuel (SNF) program is to implement policies, strategies, and programs to safely, effectively, and efficiently manage the current inventory of spent nuclear fuel located at the Oak Ridge Reservation.

The Nuclear Material and Facility Stabilization program is responsible for planning and maintaining the isotope facilities in a safe, environmentally and economically sound condition until ready for decontamination and decommissioning.

Many of the facilities are contaminated and require continuous monitoring to assure public protection from unplanned radiation releases.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 0	$ 551	$ 357	$ -194	-35
Program Support	0	150	0	-150	-100
Spent Nuclear Fuel	1,900	1,280	1,380	+100	+8
TOTAL, Oak Ridge	$ 1,900	$ 1,981	$ 1,737	$ -244	-12

III. Performance Summary - Oak Ridge (Continued)

FY 1995 Accomplishments
- o Developed vulnerability action plans for the six identified Environmental Safety and Health (ES&H) vulnerabilities.
- o Closed out four of the six vulnerabilities including activities on Homogeneous Reactor Experiment (HRE) vulnerability.
- o Provided support for the preparation of the complex-wide Programmatic Environmental Impact Statement (PEIS) for SNF.
- o Prepared ORNL Five Year Program Plan for SNF.
- o Developed the Quality Assurance (QA) Program Plan.
- o Continued to update the SNF database.
- o Inspected solid waste storage area (SWSA) 5N storage positions.
- o Implemented the SNF QA Program.
- o Started modification of SWSA 5N SNF storage positions.
- o Transferred miscellaneous SNF to consolidated storage.

FY 1996 Accomplishments (To Date and Planned)
- o Develop budget documentation, project management and program plans, schedules, and cost estimates for surplus facilities .
- o Provide program planning and performance measurement guidance for surplus facilities.
- o Conduct program management activities.
- o Perform fuel inventory database maintenance and updates.
- o Continue the implementation of the SNF QA Plan.
- o Relocate/repackage SNF from SWSA 5N storage positions; upgrade and line the existing storage positions.
- o Provide support to ORNL SNF coordinating committee.

FY 1997 Planned Accomplishments

o Develop budget documentation, project management and provide program plans and performance measurement guidance, schedules, and cost estimates for surplus facilities	$ 357
o Resolve program vulnerabilities (e.g., completion of modifications to existing storage facilities)	700
o Consolidate SNF into adequate interim storage facilities	190
o Provide support to develop Environmental Assessments (EA) and EISs for SNF Program activities	120
o Continue to support and interface with the National SNF Program	70
o Provide systems engineering support activities	150
o Provide program management to coordinate SNF activities	150
Total FY 1997, Oak Ridge	$ 1,737

III. Performance Summary - Oak Ridge (Continued)

Explanation of Funding Changes FY 1996 to FY 1997:
o FY 1997 funding for the program support category is not being requested due to more effective prioritization of programmatic activities.

Major Issues:
o None.

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE
(Dollars in Thousands)

RICHLAND

I. Mission Supporting Goals and Objectives

The Richland Operations Office (RL) manages the Hanford Site, which is located on approximately 560 square miles (1,450 square kilometers) in southeastern Washington. Facilities at the Hanford site were among the first facilities constructed by the Manhattan Project. Historically, the emphasis of its operations has been on plutonium production, reactor and processing operations and research activities related to advanced reactors, energy technologies, and basic sciences. All production activities ceased in 1989, and today the emphasis is on managing the cleanup of the previously generated, stored waste, which is often referred to as legacy waste.

The Nuclear Material and Facility Stabilization program performs the following functions:
- Manages the former defense production and nuclear energy facilities on the Hanford Site in a safe, secure, and environmentally sound manner.
- Stores, manages, and disposes of the inventory of nuclear materials associated with the former defense nuclear facilities.
- Deactivates surplus facilities to reduce costly surveillance and maintenance and prepare facilities for final decommissioning.
- Expeditiously removes spent nuclear fuel from the K-Basin and transitions all Hanford spent nuclear fuel to low-cost and safe interim storage.

In December 1992, DOE ordered the permanent shutdown of the Plutonium-Uranium Extraction (PUREX) Plant. This was the beginning of a large-scale environmental cleanup effort to prepare the PUREX Plant for safe and efficient decontamination and decommissioning work. With the cessation of production activities at the Plutonium Finishing Plant (PFP), the mission has been to operate the plant as necessary to stabilize and prepare nuclear materials for long-term storage and support cleanout activities needed to improve facility safety.

The goal of the 300 Area Fuel Supply Transition is to shutdown 18 former N-Reactor fuel manufacturing and support buildings as soon as possible, while maintaining safety and compliance.

At the end of FY 1995, the B-Plant/Waste Encapsulation and Storage Facility (WESF) complex started the deactivation process. As part of that process, a permanent shutdown notice for the B-Plant facility was issued in October 1995 and planning was initiated to decouple WESF, an operating facility, from B-Plant, and to deactivate B-Plant. Deactivation of B-Plant will be conducted using the PUREX model while the WESF will become a model for safe storage of radioactive material.

II. Funding Schedule - Richland (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 5,791	$ 7,196	$ 1,979	$ -5,217	-72
Surveillance and Maintenance	131,980	111,162	98,511	-12,651	-11
Stabilization/Deactivation Actions	19,570	41,263	37,176	-4,087	-10
Program Support	0	1,700	0	-1,700	-100
Spent Nuclear Fuel	55,467	136,000	175,000	+39,000	+29
Changes in Inventories	-73	0	-100	-100	N/A
TOTAL, Richland	$ 212,735	$ 297,321	$ 312,566	$+15,245	+5

III. Performance Summary

FY 1995 Accomplishments

- o Completed deactivation of UO3 Plant.
- o Completed 20 percent of the PUREX Deactivation project.
- o Initiated fuel transfer from PUREX to K-Basins.
- o Reduced contaminated area by 276,200 square feet, 55 percent of the total.
- o Flushed 41 vessels formerly used to process uranium and plutonium, 54 percent of the total.
- o Transferred 420,000 liters of uranium contaminated nitric acid, 58 percent of total inventory.
- o Transferred the entire 23,000 liters of solutions containing 9 kilograms of plutonium.
- o Completed cleanout of 7 gloveboxes in N Cell, Q Cell and the PR room, 37 percent of the total.
- o Deactivated 3,812 instruments and control panels, 42 percent of the total.
- o Recovered by remote control the entire 300 kilograms of spent fuel from dissolved cell floors.
- o Initiated Environmental Impact Statement (EIS) for Plutonium Finishing Plant (PFP) stabilization/shutdown.
- o Remediated the plutonium bearing ductwork in seismically unstable Plutonium Finishing Plant support facility.
- o Removed loose contamination from 110,000 square feet of space in duct level areas.
- o Completed thermal stabilization of approximately 236 items of reactive scrap containing 23 kilograms of plutonium to eliminate the backlog. inventory of organic sludge residues at PFP.
- o Completed transloading all of the chloride and fluoride containing solutions from 27 10-L containers to poly bottles for use as feed material for Environmental Technology Development.
- o Completed the 291-Z closed loop cooling system, the C132 hazardous material storage, and the 291-Z panel board upgrade.

III. Performance Summary - Richland (Continued)

FY 1995 Accomplishments (Continued)

- o Cemented 30 items of low plutonium content reactive scrap stored as sludge.
- o Completed PFP waste disposal and drainage containment projects and purchased plutonium thermal stabilization equipment, mass spectrometer, non-destructive analysis equipment, and replacement parts for the PFP.
- o Removed 10 kilograms of plutonium from glovebox bays and canyon floors. (Estimates indicated that up to 56 kilograms of plutonium still exists in PFP process lines.)
- o Completed the transfer of the entire 9,475 liters of carbon tetrachloride from PFP to a commercial industrial user.
- o Completed Building 304 concretion which included activities such as: disposed of 3,676 liters of solvent waste materials and removed 92 drums of contaminated pyrophoric waste.
- o Initiated deactivation at the 303-K and 333 Building.
- o Completed closure of 300 Area Solvent Evaporator and 304 Facility.
- o Provided surveillance and maintenance for 12 non-reactor related facilities (at the 300 Area).
- o Continued operation and maintenance activities at B-Plant/Waste Encapsulation and Storage Facility (WESF) to provide minimum safe storage for cesium/strontium capsules.
- o Unloaded 13 shipping casks of returned cesium capsules (197 units) from Denver to WESF and repackaged safety devices for return transfer.
- o Continued K-3 duct work cleanout effort.
- o Continued minimal activities in support of the conceptual design report for the ventilation systems upgrade project.
- o Provided capital equipment purchases to support B-Plant/WESF activities.
- o Developed and approved the Accelerated Path Forward strategy for removal of fuel from the K-Basin to a new Staging and Storage Facility by December 1999.
- o Developed Technical Baseline Document, Project Plan, and Project Management Plan.
- o Shipped initial fuel from K-Basin to Hot Cells for characterization.
- o Submitted Corrective Actions Report for Seismic Unresolved Safety Questions(USQ).
- o Completed preparation and installation of seismic barriers in the K-Basin and seismic barrier testing; sludge characterization sample demonstration and Seismic Barrier Readiness Assessment Review.
- o Reroofed 105 KE/KW buildings; completed design reconstitution (verification and validation of drawings for 105 KE/KW buildings).
- o Completed interim Hot Cell data evaluation reports of N-Reactor fuel at Hot Cells.
- o Provided technical support associated with the K-Basin Environmental Impact Statement (EIS).
- o Resolved K-Basins fissile material accountability issue in K East Backwash Pit.
- o Resolved K-Basin potential on exchanger hydrogen generation issue and maintained safe storage of 2,100 tons of spent fuel in K-Basins.

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III. Performance Summary - Richland (Continued)

FY 1996 Accomplishments (To Date and Planned)

- o Stabilize 12 gloveboxes, the remaining 63 percent of the total.
- o Remove the entire 3,200 kilograms of spent nuclear fuel from the PUREX.
- o Assess and reduce 35 percent of contaminated areas (53,000 square feet) at PUREX; 10 percent remaining.
- o Dispose of the entire inventory of 80,000 liters of radioactively contaminated organic solvent for PUREX.
- o Complete transfer of 308,000 liters of surplus uranium contaminated nitric acid from PUREX.
- o Initiate consolidation of the canyon heating, ventilation, and air conditioning (HVAC) systems exhaust paths from 11 to 1.
- o Conduct surveillance at the PFP to assess the condition of contaminated areas, 24,000 kilograms of plutonium-bearing materials, 18,950 liters of nitric acid, 37,900 liters of aluminum nitrate, and other residual process chemicals.
- o Complete thermal stabilization of high risk plutonium residue stored in PFP vaults.
- o Initiate cleanup of Building 303-F at the 300 Area Fuel Supply Transition.
- o Complete public review and comment on the EIS for stabilization of remaining unstable plutonium-bearing materials at PFP.
- o Provide minimum safe storage for cesium/strontium capsules located in the WESF while initiating deactivation of B-Plant.
- o Unload 2 shipping casks of cesium capsules (25 units) from ARECO in Lynchburg, Virginia.
- o Procure capital equipment to support B-Plant/WESF activities.
- o Complete K-3 duct work cleanout effort.
- o Continue planning on the conceptual design for the B-Plant ventilation systems upgrade project which is critical for deactivation.
- o Complete construction of the replacement facility for the 300-Area process sewer.
- o Complete Building 324 renovation to meet safety requirements.
- o Complete 313S Phase I portion of Waste Acid Treatment System (WATS) Resource Conservation and Recovery Act (RCRA) Closure field activities at the 300 Area Fuel Supply Transition.
- o Initiate and complete deactivation of Buildings 303-M, 303-G/B and Building 304 within the 300 Area Fuel Supply Transition.
- o Provide funding for the thyroid study as mandated in the Congressional language.
- o Operate K-Basin to maintain safe and compliant storage of the fuel until it is removed and placed into storage awaiting stabilization.
- o Develop and maintain an executable technical, schedule, and cost baseline consistent with the systems engineering technical basis.
- o Maintain two-way communication between stakeholders, the public, and Spent Nuclear Fuel (SNF) Project through proactive regulatory integration and public involvement; perform disposition of other Hanford needs to be consistent with national programmatic decisions.
- o Develop and maintain a Systems Engineering Plan that includes functional analysis to support Path Forward activities, development of functions and requirements, systems engineering management plans, and engineering integration; maintain interface control and integration support to develop an overall plan on characterization, packaging, transportation, and storage of Hanford SNF not stored in the K-Basin.
- o Complete K- Basin facility projects including repairs or replacement of minimal infrastructure systems at 100-K to meet DOE objectives associated with fuel removal. This includes recovery of systems associated with water supply, electrical system, fire protection, and maintenance support infrastructure.
- o Perform K-Basin material removal and cleanup activities including characterization of debris, sludge, fuel, and water.
- o Complete K-Basins EIS and basin walls painting - Dose reduction.

III. Performance Summary - Richland (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)
- o Initiate and complete design and Phase I construction of the Canister Storage Building (CSB); initiate CSB construction.
- o Initiate and complete Multi-Canister Overpack (MCO) process testing.
- o Start the manufacturing of the Cask/Transportation System.
- o Initiate and complete conceptual design for cold vacuum drying and for hot vacuum conditioning system processing equipment.

FY 1997 Planned Accomplishments

Program Integration
- o Provide required financial and program planning documents, such as Activity Data Sheets, Site Integration Planning, Progress Tracking System/Site Management System input and Multi-Year Program Plan, and submit sitewide system input ..... $ 1,979

Surveillance and Maintenance
- o Continue surveillance and maintenance activities at PFP, the 300 Area Fuel Supply, PUREX, and B-Plant including the surveillance of safety controls; maintenance of fire, safety and life support systems; building support and essential services to be performed as specified by Operational Safety Requirements (OSR). This also includes system/facility monitoring, corrective and preventive maintenance, and safeguards and security 98,511

Stabilization/Deactivation Actions
- o Initiate Phase II of WATS RCRA closure activities at the 300 Area Fuel Supply; obtain regulatory approval of RCRA closure plans; complete isolation of building 313S and complete non-RCRA shutdown activities 4,140
- o Complete the following deactivation activities at the Plutonium Finishing Plant (PFP): initiate stabilization of 4,800 liters of Plutonium solutions; initiate selected PFP terminal cleanout activities and stabilize reactive solids; complete design and reviews for vault storage upgrades in support of Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1 14,990
- o Complete all deactivation activities at PUREX; 100 percent of end-state activities which include: disconnecting all utilities, deactivating radiation/fire protection and monitoring systems, and consolidating HVAC and electrical systems for required ventilation and filtering 10,517
- o Complete the following deactivation activities at the B-Plant facility: deactivate 25 facility systems for organics inventory storage, remove and stabilize highly radioactive materials from process equipment and structures, stabilize canyon exhaust filters and eliminate surface contamination in surrounding environments, shutdown steam supply to eliminate costly reliance 7,529

Spent Nuclear Fuel
- o Continue to develop and maintain an executable technical, schedule, and cost baseline consistent with the Systems Engineering technical basis; maintain two way communication between stakeholders, the public, and the SNF Project through proactive regulatory integration and public involvement 9,616

III. Performance Summary - Richland (Continued)

FY 1997 Planned Accomplishments (Continued)

o Continue to develop and maintain a Systems Engineering Plan that includes functional analysis to support Path Forward activities, development of functions and requirements, systems engineering management plans, and engineering integration	$ 10,619
o Continue to perform K-Basin activities which include the operations of K-Basins to maintain safe and compliant storage of the fuel until it is removed and placed into storage awaiting stabilization	26,599
o Continue to perform K-Basin material removal and cleanup including characterization of debris, sludge, fuel, and water. (System acquisition for design and installation of debris and sludge removal systems are included. Operational support associated with this system acquisition is closely integrated with the Path Forward goals)	37,125
o Start the manufacturing of the initial Multi-Canister Overpack units, which are an integral step in accomplishing the expedited Path Forward	5,189
o Continue the manufacturing of the Cask/Transportation System that is required to support the expedited Path Forward fuel movement	12,363
o Start Phase II construction and Phase II facility equipment procurement to complete the required for K-Basin fuel removal	46,125
o Continue to perform disposition of other Hanford needs to be consistent with national programmatic decisions by maintaining interface control and integration support to develop an overall plan on characterization, packaging, transportation, and storage of Hanford SNF not stored in the K-Basin	328
o Perform fuel conditioning facilities design and other preconstruction activities to support the Accelerated Path Forward	27,036
Changes in Inventories	
o The FY 1997 funding request for the Richland program reflects an adjustment for changes in inventories based on programmatic requirements	-100
Total FY 1997, Richland	$ 312,566

Explanation of Funding Changes FY 1996 to FY 1997:

- o The decrease in program integration funding of $5,217,000 is due to the transitioning of facility specific planning activities to the individual transition projects within the Richland program.
- o The decrease in surveillance and maintenance funding of $14,281,000 reflects the deactivation of Plant Systems at PUREX.
- o The decrease of $2,457,000 in stabilization/deactivation actions is due to the purchase of high efficiency thermal stabilization muffle furnaces in FY 1996 at PFP.
- o The increase in funding of $39,000,000 for spent nuclear fuel is due to the acceleration of the path forward. To achieve the $350 million over 10 years savings over the original path forward, a front end increase is necessary to enable timely completion of the new milestones.

Major Issues:

- o In FY 1997 the thyroid study activity is not being budgeted within the Nuclear Material and Facility Stabilization program.

SAVANNAH RIVER

I. Mission Supporting Goals and Objectives

The Savannah River Site, located near Aiken, South Carolina, produced nuclear materials for defense purposes. As one of the Department of Energy's (DOE) larger sites, it includes five nuclear reactors, two chemical separations facilities, fuel and target fabrication facilities, tritium processing facilities, a heavy water rework facility, two high-level waste tank farms, low-level waste, storage and disposal facilities, a high-level waste treatment facility (Defense Waste Processing Facility), and the Savannah River Technology Center. In keeping with the Nation's nuclear weapons reduction initiatives, the Department has ceased production of nuclear materials and is now focused on stabilization of the nuclear material inventories and preparation of surplus facilities for eventual decontamination and decommissioning.

The Office of Nuclear Material and Facility Stabilization's mission is to stabilize nuclear materials and then to deactivate facilities to the point that minimal investment is necessary to maintain the facilities until they can be decontaminated and decommissioned. Stabilization means that something (processing from a liquid to a solid form, processing to remove activated waste streams, repackaging, etc.) must be done to the nuclear materials so that they pose significantly less risk to workers, the public, and/or the environment. Nuclear materials will be stabilized in the F-Canyon, FB-Line, H-Canyon, and HB-Line at Savannah River. Deactivation means that, once nuclear materials are removed from a facility, hazardous materials, such as chemicals, are removed from the facility; support systems, such as electrical distribution systems, are reduced to the minimum necessary to assure that there is little contamination or safety risk to workers, the public, and/or the environment. At this point, other support systems, such as fire protection, maintenance, Radcon support, etc. can be reduced dramatically. Deactivation will be occurring in the reactors, heavy water, fuel fabrication, and support facilities. It is the program's objective to comply with all National Environmental Policy Act (NEPA) requirements prior to stabilization activities.

The budget will continue to focus on the safe maintenance of facilities within the residual production complex both before and following stabilization activities, continue efforts to achieve and maintain compliance with all applicable laws, regulations, and Department of Energy Orders; and maintain progress toward improving the conduct of all remaining operations.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 514	$ 21,350	$ 0	$ -21,350	-100
Surveillance and Maintenance	0	379,109	312,865	-66,244	-17
Stabilization/Deactivation Actions	0	55,159	98,004	+42,845	+78
Spent Nuclear Fuel	6,062	6,527	22,700	+16,173	+248
Savannah River Site Transfer	581,913	0	0	0	0
TOTAL, Savannah River	$588,489	$462,145	$433,569	$ -28,576	-6

III. Performance Summary - Savannah River (Continued)

FY 1995 Accomplishments

- o Transfer of facilities due to mission change from defense-related activities to Environmental Management activities.
- o Spent Nuclear Fuel Project:
  - Transmitted Savannah River (SR) National Environmental Policy Act (NEPA) documentation to Sandia National Laboratory (SNL).
  - Provided dedicated technical advisors to support DOE-HQ/Office of Spent Nuclear Fuel.
  - Developed and integrated SRS technical input into the planning and implementation of the DOE Complex Spent Nuclear Fuel (SNF) Policy and Program Plans.
  - SRS site specific NEPA documentation provided for: 1) the preparation of a Environmental Assessment/Finding of No Significant Impact (DOE EA/FONSI) for initiating the acceptance of a portion of the Foreign Research Reactor (FRR) SNF considered critical to the U.S. Nonproliferation Policy; 2) the preparation of a DOE EIS (FRR SNF EIS) to support the establishment of a new U.S. Acceptance Policy for the FRR SNF; and 3) the postulated accident scenarios for the various handling and interim storage and treatment options as identified by DOE.
  - Initiated fabrication of a calorimeter for evaluating thermal properties of DOE research SNF.
  - Developed and validated the acceptance criteria for the alternative fuel container systems.
  - Modified and validated the existing heat transfer computability models for various FRR fuel configurations.
  - Developed preconceptual design studies for various interim "dry storage" alternatives to enable identification of the most cost-effective design approach for SRS, enabling the timely initiation of a Conceptual Design Report (CDR) upon DOE authorization of Key Decision (KD)#0.
  - Analyze alternatives for the environmentally responsible stabilization of materials in the existing basins.

FY 1996 Accomplishments (To Date and Planned)

- o Continue maintenance of fire, safety, and life support systems at facilities and maintenance of facility safety envelope.
- o Complete stabilization of 50,000 gallons of plutonium-239 solution in F-Canyon. The solution will be converted to metal.
- o Complete dissolving 139 metric tons of Mk-31 targets. The targets will be converted into solid forms suitable for safe interim storage.
- o Complete shutdown of the fuel fabrication facilities in M-Area.
- o Complete post-Cassini plutonium-238 processing.
- o Provide upgrades to existing facilities and equipment or construct new facilities/equipment to support operations. These include the disassemble basin upgrades, F&H Canyon Exhaust Upgrades, as well as capital equipment and general plant projects associated with fuel fabrication, reactors, heavy water, and chemical separation facilities.
- o Provide DOE oversight of contractor implementation of DOE programs at Savannah River by providing programmatic direction and guidance concerning scope, assessing contractor performance against schedule and cost baselines, assessing the adequacy of conduct of operations, auditing business practices, performing environment, health, safety, and security surveys, etc.
- o Provide security services at Savannah River.
- o Manage the forests and land resources on a 300 square mile site.
- o Provide baseline environmental information for 300 square miles.
- o Provide technical analyses/reports/surveillance for operations.
- o Purchase automated data processing major item of equipment - Radioactive Liquid Transport Cask ($3,500,000).

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III. Performance Summary - Savannah River (Continued)

FY 1996 Accomplishments (To Date and Planned) (Continued)

o Spent Nuclear Fuel Project:

- Provide required tasks to develop and integrate SRS technical input into the planning and implementation of a DOE Complex SNF Policy and Program Plan through coordination with Idaho National Engineering Laboratory, Argonne National Laboratory, Richland and Oak Ridge Operations Offices and other DOE organizations, as appropriate. This effort includes: capability assessments and scope estimates, position papers, reports, to support technically defensible alternative analyses, program decisions and work activities; provide support for preparation of the Departmental Level Standards and Requirements documents for SNF, including: a) revision of DOE Order 5820.2B "DOE Waste Management"; b) the development of SNF interim dry storage acceptance criteria; c) participate on technical working teams in the development and implementation and maintenance of the detailed complex implementation plans; and d) provide technical support to the DOE NEPA working team to develop and integrate SRS site specific NEPA documentation into the complex-wide assessments.
- Close out the analyses and laboratory testing necessary to demonstrate the technical basis for interim "dry storage" of highly enriched aluminum clad SNF's.
- Continue analyses and laboratory testing required to identify, evaluate, verify the feasibility, and define the bounding acceptance criteria for criticality control of the various alternatives identified for the interim dry storage of aluminum clad highly enriched uranium (HEU) fuels and the final geological repository performance acceptance criteria for the final waste forms.
- Provide technical and operational support necessary for the timely and cost-effective acceptance and management of FRR SNF, based on the Department's decision upon completion of required NEPA reviews.

FY 1997 Planned Accomplishments

o Surveillance and Maintenance

- Maintenance of fire, safety, and life support systems at facilities, maintenance of facility safety envelope, conduct more than 30,000 surveillance, 45,000 radiological surveys, etc $242,432
- Provide security services at Savannah River 48,000
- Provide upgrades to existing facilities and equipment to support operations 22,433

o Stabilization/Deactivation activities 98,004

-- Complete installation of equipment for demonstration project to package plutonium in accordance with DOE's new plutonium storage standard for greater than 50 percent assay material.
-- Complete removal of 358 MT of sludge from the K- and L-Reactor Disassembly Basins.
-- Begin stabilization of the Mark-16 and -22 spent nuclear fuel.
-- Complete dissolution of 324 cans of plutonium sand, slag, and crucible that are known unstable plutonium residues.
-- Begin repackaging and characterization of 800 cans of plutonium solids and mixed plutonium scrap in FB-Line .
-- Complete dissolution of 306 cans of plutonium sweepings/turnings.
-- Begin repackaging 369 cans of plutonium metal to meet new storage standard for greater than 50 percent assay material.
-- Complete stabilization of 13,300 liters of plutonium 242 solution in H-Canyon.
-- Complete removal and replacement of six existing F- and H-Canyon underground diesel oil storage tanks.
-- Complete installation of Americium/Curium vitrification equipment in F-Canyon.

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III. Performance Summary - Savannah River (Continued)

FY 1997 Planned Accomplishments (Continued)	22,700
o Spent Nuclear Fuel Project	
- Continue activities such as consolidation and implementation of work scope for authorization, cost and performance monitoring and reporting, and development of periodic program reviews for the timely and efficient involvement of senior Westinghouse Savannah River Company (WSRC) and DOE-SR management personnel.	
- Continue to execute tasks required for the integration of WSRC technical input into the planning and implementation of the DOE Complex SNF Policy and Program Plans, including: timely response to data calls and special projects as requested by DOE; input into the DOE complex spent fuel and facility databases and the involvement and education of SRS stakeholders.	
- Provide technical and operational support necessary for the timely and cost-effective acceptance and management of FRR SNF, should the Department decide to implement a new FRR SNF acceptance policy upon completion of the FRR SNF EIS.	
- Prepare pre-authorization documentation to support capital funding authorization for interim dry storage to include: 1) finalize generic procurement specification and issue dry storage facility Request for Proposal (RFP); 2) complete dry storage design criteria Research and Development (R&D) and initiate parametric validation; and, 3) complete conceptual design.	
- Continue development of alternative treatment and packaging technologies for aluminum clad SNF with specific focus on direct disposal and melt/dilute and poison technologies. Prepare stabilization flow sheet for consolidation and dilution of poisoning ($20,000,000).	
Total FY 1997, Savannah River	$ 433,569

III. Performance Summary - Savannah River (Continued)

Explanation of Funding Changes FY 1996 to FY 1997 - Savannah River

- The Savannah River budget reflects the Inspector General findings in FY 1996 concerning cost accounting standards, specifically in the surveillance and maintenance, stabilization/deactivation, and program integration activities. ($-27,749,000)
- A reduction of $17,000,000 due to complete stabilization of M-Area, shut down fuel fabrication operations, reduced manpower and subcontracts.
- An increase in funding of $16,173,000 to evaluate alternative disposal technologies for the aluminum-clad SNF.

Major Issues:

- None.

HEADQUARTERS

I. Mission Supporting Goals and Objectives

Headquarters role is to determine and implement policy. This is done through the establishment of priorities and goals for the program, and the development of baselines to assist in determining progress on a given activity. Subsequently, Headquarters assesses the adequacy of progress in order to report to Congress, interested stakeholders, and the public on the status of the Nuclear Material and Facility Stabilization program.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 552	$ 6,413	$ 2,394	$-4,019	-63
Program Support	525	0	0	0	0
TOTAL, Headquarters	$ 1,077	$ 6,413	$ 2,394	$-4,019	-63

III. Performance Summary

FY 1995 Accomplishments

- o Provided Headquarters-directed field activities to support independent technical expertise for Nuclear Material and Facility Stabilization program reviews.
- o Reviewed and updated the Surplus Facility Inventory and Assessment (SFIA) database.

FY 1996 Accomplishments (To Date and Planned)

- o Continue to provide funding to support program management plans and procedures, management support systems, and performance systems.
- o Provide Headquarters-directed field activities to support independent technical expertise for Nuclear Material and Facility Stabilization program reviews.
- o Review and update the Surplus Facility Inventory and Assessment (SFIA) database.

FY 1997 Planned Accomplishments

o Provide Headquarters-directed field activities to support independent technical expertise for Nuclear Material and Facility Stabilization program reviews	$ 1,597
o Conduct analysis of safeguards and security (S&S) activities and provide expert opinions to Environmental Management managers to optimize S&S implementation; review and evaluate site S&S plans for EM facilities to ensure that a cost-effective and appropriate S&S program is implemented	797
Total FY 1997, Headquarters	$ 2,394

III. Performance Summary - Headquarters (Continued)

Explanation of Funding Changes FY 1996 to FY 1997

- Headquarters technical expertise activities for the Nuclear Material and Facility Stabilization program are reduced due to more effective prioritization of programmatic activities.
- Initiate Safeguards and Security activities for $797,000 in the Nuclear Material and Facility Stabilization program.

Major Issues:

- None.

NUCLEAR MATERIAL AND FACILITY STABILIZATION - DEFENSE
(obligations in thousands)

PROGRAM OBJECT CLASS SUMMARY

	Direct Obligation:	FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
	Personnel Compensation:					
11.1	Full-time permanent	$ 0	$ 0	$ 0	$ 0	$ 0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.9	Total Personnel Compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13.0	Benefits for former personnel	0	0	0	0	0
21.0	Travel and transportation of persons	0	0	0	0	0
22.0	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Communications, utilities, and misc charges	0	0	0	0	0
24.0	Printing and reproduction	0	0	0	0	0
25.4	Operations and maintenance of facilities	855,773	653,442	880,503	1,424,977	778,942
25.5	Research and development contracts	0	0	0	0	0
26.0	Supplies and materials	0	0	0	0	0
31.0	Equipment	41,662	10,947	45,112	73,707	27,474
32.0	Land and structures	44,147	65,429	117,370	190,411	97,405
33.0	Investments and loans	0	0	0	0	0
42.0	Insurance claims and indemnities	0	0	0	0	0
99.0	Subtotal, Direct Obligations	941,582	729,818	1,042,985	1,689,095	903,821
	Reimbursable Program					
99.9	Total Obligations	$ 941,582	$ 729,818	$1,042,985	$1,689,095	$ 903,821
	Recovery of prior year obligations			-123,641	-123,641	
	Unobligated balance available, start of year	-1,647	-1,647	-3,600	-3,600	
	Unobligated balance available, end of year	+3,600	+3,600			
	Budget Authority	$ 943,535	$ 731,771	$ 915,744	$1,561,854	$ 903,821

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Dollars in thousands)

NUCLEAR MATERIAL AND FACILITY STABILIZATION
CAPITAL OPERATING EXPENSES AND CONSTRUCTION SUMMARY

Capital Operating Expenses	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
GPP	$17,342	$16,294	$12,248	$-4,046	-25
AIP	0	0	0	0	0
Capital Equipment	41,851	28,848	27,474	-1,374	-5
Project Related Costs					
1. CDRs	0	0	0	0	0
2. "Bridge" Costs	0	0	0	0	0

Construction Project Summary

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Comp. Approp.	FY 1996 Comp. Approp.	FY 1997 Request	Unapprop. Balance
97-D-450	Actinide Packaging and Storage Facility, Savannah River Site, Aiken, South Carolina	109,838	0	0	0	7,900	101,938
97-D-451	B-Plant Safety Class Ventilation Upgrades, Richland, Washington	3,500	0	0	0	1,500	2,000
96-D-406	Spent Nuclear Fuels Canister Storage and Stabilization Facility, Richland, Washington	111,416	0	0	42,000	60,672	8,744
96-D-457	Thermal Treatment System, Richland, Washington	6,000	0	0	1,000	0	5,000

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Construction Project Summary (Continued)

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Comp. Approp.	FY 1996 Comp. Approp.	FY 1997 Request	Unapprop. Balance
96-D-464	Electrical and Utility Systems Upgrade, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho	62,280	0	0	4,512	10,440	47,328
95-D-158	Disassembly Basin Upgrade, K, L, P, Savannah River Site, Aiken, South Carolina	13,000	0	13,000	0	0	0
95-D-456	Security Facilities Consolidation, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho	15,100	0	986	8,382	4,645	1,087
93-D-148	Replace High Level Drain Lines, Savannah River Site, Aiken, South Carolina	5,300	2,600	2,700	0	0	0
93-D-186	200 Area Unsecured Core Area Fabrication Shop, Richland, Washington a/	5,000	1,000	4,000	0	0	0
92-D-182	Idaho National Engineering Laboratory Sewer System Upgrade, Idaho National Engineering Laboratory, Idaho	9,150	7,250	1,900	0	0	0
92-D-186	Steam System Rehabilitation, Phase II, Richland, Washington	10,300	2,700	600	0	0	7,000

a/ This project has been canceled due to mission changes. All funding for this project was used as part of the FY 1995 uncosted balance reduction.

Construction Project Summary (Continued)

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Comp. Approp.	FY 1996 Comp. Approp.	FY 1997 Request	Unapprop. Balance
92-D-187	300 Area Electrical Distribution Conversion and Safety Improvements, Phase II, Richland, Washington	11,566	11,120	446	0	0	0
77-13-A	Fluorinel Dissolution Process and Fuel Receiving Improvements, Idaho National Engineering Laboratory, Idaho b/	209,703	206,800	2,903	0	0	0
Subtotal, Construction Funded		$572,153	$231,470	$ 26,535	$ 55,894	$ 85,157	$173,097

b/ Project transferred from Defense Programs. Reprogramming approved to pay litigation claim.

CAPITAL OPERATING EXPENSES AND CONSTRUCTION SUMMARY - NUCLEAR MATERIAL AND FACILITY STABILIZATION (Continued)

Project Number	Project Title	TEC	Previous Approp.	FY 1995 Comp. Approp.	FY 1996 Comp. Approp.	FY 1997 Request	Unapprop. Balance
96EXP	Americum/Curium Vitrification, Savannah River Site, South Carolina	$ 29,230	$ 0	$ 0	$ 6,355	$ 11,585	$ 11,290
Subtotal, Operating Expense Funded		$ 29,230	$ 0	$ 0	$ 6,355	$ 11,585	$ 11,290
Total, Project Funding -Defense		$601,383	$231,470	$ 26,535	$ 62,249	$ 96,742	$184,387

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENTAL MANAGEMENT
PROJECT DATA SHEETS

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96-D-406	Spent Nuclear Fuels Storage and Stabilization Facility, Richland, Washington	785
96-D-464	Electrical and Utility Systems Upgrade, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho	793
95-D-456	Security Facilities Consolidation, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho	801
	American/Curium Vitrification, Savannah River Site, South Carolina	807

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

NUCLEAR MATERIAL AND FACILITY STABILIZATION
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Actinide Packaging and Storage Facility, Savannah River Site, Aiken, South Carolina

2a. Project No. 97-D-450 ADS# 6965-17
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled: 1st Qtr. FY 1997)

3b. A-E Work (Titles I & II) Duration: 12 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- NONE
Total Project Cost (TPC) -- NONE

4a. Date Physical Construction Starts: 2nd Qtr. FY 1998

4b. Date Construction Ends: 3rd Qtr. FY 2001

6. Current Cost Estimate:
TEC -- $109,838
TPC -- $138,753

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1997	$ 7,900	$ 0	$ 7,900	$ 7,514
1998	18,000	0	18,000	14,339
1999	39,800	0	39,800	34,864
2000	31,000	0	31,000	34,380
2001	13,138	0	13,138	18,741

Note: This project is within the "No Action" and "Upgrade in Place" alternative under consideration by the Department for the future storage of fissile materials. In addition, under the alternative of "Consolidation" at one site, this initial design effort would be applied either at Savannah River (a candidate site for the consolidated facility) or at another candidate site.

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1. Title and Location of Project:	Actinide Packaging and Storage Facility, Savannah River Site, Aiken, South Carolina (Continued)	2a. Project No.: 97-D-450 2b. Construction Funded	ADS# 6965-17

8. Project Description, Justification and Scope

The Department of Energy (DOE) committed, in the Implementation Plan, for the Defense Nuclear Facilities Safety Board (DNFSB), Recommendation 94-1 to meet the DOE Criteria, for Safe Storage of Plutonium Metal and Oxides (DOE-STD-3013-94) by May 2002. The existing Savannah River Site (SRS) Facilities are not sufficient or capable of meeting the commitments in the DNFSB 94-1 Implementation Plan; therefore the Actinide Packaging and Storage Facility must be constructed. SRS has determined that a new Actinide Packaging and Storage Facility is the safest (to the worker and environment), and the most economical option compared to the major modification and refurbishing of existing SRS facilities and to a "no action" option. A life cycle cost estimate demonstrated that a new Actinide Packaging and Storage Facility has the lowest total associated cost with a payback period of approximately 3.5 years.

The Actinide Packaging and Storage Facility will provide for thermal stabilization, repackaging, and safe, secure, cost-effective storage of the Special Nuclear Material (SNM) to meet DOE-STD-3013-94, Criteria for Safe Storage of Plutonium Metals and Oxides. The facility is to be a 40,000 square foot (approximately) structure constructed in F-Area consisting of a 23,000 sq. ft. (approximately) hardened structure containing the Material Access Area (MAA). The MAA will be bounded by a contiguous 17,000 sq. ft. (approximately) soft structure containing offices, heating, ventilation, and air conditioning (HVAC) support equipment, and other administrative functions and will be designed to meet all the applicable national standards and DOE Orders.

Specifically, the facility will consist of process areas and equipment for truck unloading/loading, material confirmation, shipping packaging and unpackaging, accountability measurements, safety evaluation, International Atomic Energy Agency (IAEA) inspections, repackaging, waste management, a vault room with automated accessible storage bays, and full support and administration functions. For vault surveillance and container handling, automation will be used to minimize exposure. Additionally, a bagless transfer operation will be used to minimize exposure for the transfer of SNM from the exiting containers to containers designed for interim storage.

Utilities and services required will include electricity, potable process water, chemical storage, steam, compressed air, standard and high-efficiency particulate air filtered ventilation, and communications.

FY 1997 funding will be used for Title I and II architectural and engineering activities.

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8. Project Description, Justification and Scope (continued)

This project will:

(1) Provide safe and secure interim storage for SNM until final dispositioning options are selected.

(2) Provide a cost-effective central storage facility to consolidate current SNM inventory which meets the DOE standard for storage of plutonium metals and oxides and the time table recommended by the DNFSB.

(3) Enable the deinventory of the canyon facilities and thereby reduce staffing and security requirements.

(4) Reduce worker radiation exposure by providing automation (where feasible) for container storage retrieval and positioning.

(5) Provide a location for IAEA inspection to meet non-proliferation objectives.

1. Title and Location of Project:	Actinide Packaging and Storage Facility, Savannah River Site, Aiken, South Carolina (Continued)	2a. Project No.: 97-D-450 2b. Construction Funded	ADS# 6965-17

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 18,028
1. Engineering, design, and inspection at approximately 17 percent of construction costs (item c) (Design, Drawings, and Specifications ($6,009,000)	$ 11,184	
2. Construction Management Costs at 6 percent of construction costs (Item c)	4,102	
3. Project management at 4 percent of construction costs of Item c	2,742	
b. Land and land rights		0
c. Construction costs		65,614
1. Improvements to land	6,304	
2. Buildings	28,715	
3. Other structures	1,327	
4. Utilities	3,386	
5. Special facilities	25,882	
d. Standard equipment		7,614
e. Major computer items		0
f. Removal cost less salvage		10
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 91,266
i. Contingencies at approximately 20 percent of above cost		18,572
j. Total line item cost (Section 11.a.1[a])		$109,838
k. Less: Non-Federal Contribution		0
l. Net Federal total estimated cost (TEC)		$109,838

Department of Energy established escalation rates were used as provided in June 1995.

10. Method of Performance

A make-versus-buy analysis will be completed and as a result, design, construction, and procurement shall be accomplished by fixed priced contracts or by the Management and Operating (M&O) Contractor awarded on the basis of competitive bidding.

11. Schedule of Project Costs and Other Related Cost Requirements

	Previous Years	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
a. Total project costs							
1. Total Facility Costs							
(a) Line item (Section 9.j.)	$ 0	$ 7,514	$ 14,339	$ 34,864	$ 34,380	$ 18,741	$109,838
(b) Plant engineering and design	0	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 7,514	$ 14,339	$ 34,864	$ 34,380	$ 18,741	$109,838
2. Other project costs							
(a) R&D necessary to complete project	2,600	2,140	2,575	0	0	0	7,315
(b) Conceptual design costs	729	0	0	0	0	0	729
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0	0
(d) NEPA documentation costs	300	0	0	0	0	0	300
(e) Other project-related costs	1,200	760	760	1,260	6,366	10,225	20,571
(f) Total other project costs	$ 4,829	$ 2,900	$ 3,335	$ 1,260	$ 6,366	$ 10,225	$ 28,915
(g) Total project cost	$ 4,829	$ 10,414	$ 17,674	$ 36,124	$ 40,746	$ 28,966	$138,753
(h) Less: Non-Federal Contribution	0	0	0	0	0	0	0
(i) Net Federal Total Project Cost (TPC)	$ 4,829	$ 10,414	$ 17,674	$ 36,124	$ 40,746	$ 28,966	$138,753

b. Related annual funding (estimated useful life of each facility--30 years)	
1. Facility operating costs	$ 16,600
2. Facility maintenance and repair costs	2,500
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	500
5. GPP or other construction related to the programmatic effort in the facility	500
6. Utility costs	900
7. Other related costs	0
Total related annual costs	$ 21,000

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12. Narrative Explanation of Total Project Costs and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line Item--The line item TEC is $109,838,000.
(b) PE&D - None
(c) Expense-funded equipment--None.
(d) Inventories--None.

2. Other project costs
(a) R&D necessary to complete construction--$7,315,000.
These costs include development of the intermin storage container, the Bagless Transfer system, Laser Sampling system, Digital Radiography Inspection system, Vault Container Delivery system, Primary Container Welding, and Container Assay Equipment.
(b) Conceptual design--$729,000.
(c) Decontamination & Decommissioning (D&D)--None
(d) NEPA Documentation --$300,000.
(e) Other project related costs--$20,571,000.
These costs include technical support during design and construction, preparation of safety analysis documentation, preparation of operating procedures and operator training, startup testing, and execution of the Operational Readiness Review/Operational Readiness Evaluation (ORR/ORE).
(f) Non-Federal Contribution--None.

b. Related annual costs
(1) Facility operating costs--$16,600,000.
(2) Facility maintenance and repair costs--$2,500,000.
(3) Programmatic operating expenses directly related to the facility--None.
(4) Capital equipment not related to construction but related to the programmatic effort in the facility--$500,000.
(5) GPP or other construction related to programmatic effort--$500,000.
(6) Utility costs--$900,000.
(7) Other costs--None.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

NUCLEAR MATERIAL AND FACILITY STABILIZATION
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: B-Plant Safety Class Ventilation Upgrades, Richland, Washington

2a. Project No.: 97-D-451 a/ ADS# RL-6626-1
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1997

3b. A-E Work (Titles I and II) Duration: 10 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC)- None
Total Project Cost (TPC) -- None

4a. Date Physical Construction Starts: 1st Qtr. FY 1998

4b. Date Construction Ends: 2nd Qtr. FY 1999

6. Current Cost Estimate:
TEC -- $3,500 a/
TPC -- $5,300

7. Financial schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1997	$ 1,500	$ 0	$ 1,500	$ 1,000
1998	2,000	0	2,000	1,860
1999	0	0	0	640

a/ This project is being transferred from the Waste Management program to the Nuclear Material and Facility Stabilization program. It is being submitted as a new project rather than a continuation of project 92-D-176 due to a major change in mission.

8. Project Description, Justification and Scope

Completion of this project will provide isolation of existing B-Plant canyon filters in order to meet the end point criteria for cleanout and stabilization. The project includes a replacement High-Efficiency Particulate Air (HEPA) filter system for the B-Plant canyon exhaust with a new above grade filter housing with changeable HEPA filter elements, including ductwork, utilities, instrumentation and controls. The existing underground HEPA filter system will be isolated from the remainder of the plant by installing barriers in the air duct, thereby isolating the largest mobile radiological source term within the facility.

The original B-Plant canyon ventilation system exhausted air directly to the environment via a 200-foot stack with no filtration. A sand filter was added in 1948. The first HEPA filter system was installed in the 1960s, with an array of filter elements installed in an underground concrete chamber. Before each filter reached the end of its life, a new chamber was built beside the previous filter. This process continued; the fourth HEPA filter system, designated "D Filter" is now in service, and the "E Filter" is standing by. Airflow through the retired filters is blocked by a water seal provided at the outlet of each filter, but all filters share a common inlet.

The radionuclides loading onto the fiberglass and plywood HEPA filters is estimated between 100,000 and 1,000,000 total curies, primarily 90Sr and 137Cs. The filter elements themselves provide questionable integrity due to their age and accumulated radiation dose. Concerns exist regarding the potential for migration of the radionuclides from retired filters to in-service filters, or the potential for release of the radionuclides to the environment in the event of an accident. The maximum potential onsite and offsite doses associated with an accidental release from the retired filters is ten times higher (0.18 rem offsite/456 rem onsite) than the doses associated with an accident involving the B-Plant canyon facility it serves (0.018 rem offsite/44.7 rem onsite).

The new filter system will use changeable filters which will not accumulate the high level of radionuclides that are present on the existing HEPA filters. Consequently, the worst case accident involving the new filter system would result in negligible doses to workers or public.

Water seals are used on the outlet side of the retired HEPA filters to prevent airflow through them. The water seals must be monitored and refilled routinely due to evaporation. Isolating the existing filter system and constructing a new filter system would preclude the need for water seals and eliminate the possibility of radionuclides release due to a failed water seal.

The Washington State Department of Health exercises authority over the design and construction of air cleaning systems associated with permitted stacks. That agency has expressed concern regarding the reliability of the water seals but has accepted the current configuration of retired filters with outlet water seals at B-Plant as long as the seals are assured through daily surveillance. Once the plant is inactive, however, daily surveillance will not be practical. The new filter system eliminates the use of water seals altogether.

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8. Project Description, Justification and Scope (Continued)

The new filter system will require less maintenance and surveillance than the existing system, resulting in reduced resource requirements. Currently, the retired filters require an operator to perform surveillance on water levels once per shift (approximately 3 man-hours per day). In addition, seals must be refilled due to evaporation. Refilling pumps requires entry into surface contamination areas and confined spaces, and requires approximately 16 man-hours per month. Surveillance requires at least one operator to be present at the plant; refilling the water seals requires two operators. Radiological technical support is required to perform periodic surveillance and to update radiation work permits for the areas requiring access.

The radionuclides content in the new filter system will be negligible, compared to a source term of approximately 750,000 curies in the existing HEPA filter system. Once the existing system is isolated, the potential for this release would no longer exist. Additionally, the new filter system will reduce airflow from 30,000 cfm to 10,000 cfm with a corresponding reduction in radionuclides deposition on the HEPA filters. Lower filter loading will result in less waste being generated.

The estimated gross annual cost of operating the project facilities upon completion is approximately $50,000. The primary elements of the annual operating costs are utility costs for operating the exhaust fans and inlet air pre-heater; and labor and material costs for daily surveillance of the new filter system, annual replacement of spent HEPA filters, bi-annual instrument calibration, and replacement of failed equipment (e.g. valves, heaters). The gross annual cost for operating the current B-Plant canyon ventilation is approximately $142,000.

FY 1997 appropriation will be used for Title I Design work.

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1. Title and Location of Project:	B-Plant Safety Class Ventilation Upgrades, Richland, Washington (Continued)	2a. Project No.: 97-D-451 2b. Construction Funded	ADS# RL-6626-1

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management costs		$ 1,000
1. Engineering design and inspection at approximately 35 percent of construction costs, Item c (Design, Drawings, and Specifications: $370,000)	$ 630	
2. Construction Management Costs approximately 12 percent of construction costs (item c)	210	
3. Project management at 9 percent of construction costs (item c)	160	
b. Land and land rights		0
c. Construction costs		1,800
1. Improvements to land	0	
2. Buildings	0	
3. Other structures	1,660	
4. Utilities	0	
5. Special facilities	140	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 2,800
i. Contingencies at approximately 25 percent of above costs		700
j. Total line item cost (Section 11a, 1[a])		$ 3,500
k. Less: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 3,500

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10. Method of Performance

The operating contractor shall provide technical direction, overall integration and operational support for this project.

Design and inspection shall be performed under a negotiated contract with the onsite engineer-constructor. To the extent feasible, construction and procurement shall be accomplished by fixed-price contracts awarded on the basis of competitive bidding.

Site preparation and installation of the isolation barriers and tie-in configuration to the existing filter system shall be by the onsite engineer-constructor due to the radiological dose and contamination potential at these location.

Note: This estimate is based on a completed conceptual design.

All costs include escalation based on the "Material and Labor Escalation Study," prepared by Kaiser Engineers Hanford, dated February 1994. Engineering: FY 1994-3.8%; FY 1995-4.2%; FY 1996-4.2%; FY 1997-4.5%; FY 1998-4.5%; FY 1999-4.9%; FY 2000-4.5%; FY 2001-4.4%; Construction: FY 1994-2.9%;FY 1995-3.4%; FY 1996-3.4%; FY 1997-3.4%; FY 1998-3.7%; FY 1999-3.5%; FY 2000-3.4%; FY 2001-3.1%.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1996	FY 1997	FY 1998	FY 1999	TOTAL
a. Total facility costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 0	$ 1,000	$ 1,860	$ 640	$ 3,500
(b) Plant Engineering and Design	0	0	0	0	0	0
(c) Operating Exp Funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 0	$ 0	$ 1,000	$ 1,860	$ 640	$ 3,500
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	218	0	0	0	0	218
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	5	0	0	0	0	5
(e) Other project-related costs	287	170	312	566	242	1,577
(f) Total other project costs	$ 510	$ 170	$ 312	$ 566	$ 242	1,800
(g) Total project costs	$ 510	$ 170	$ 1,312	$ 2,426	$ 882	$ 5,300
(h) Less: Non-federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 510	$ 170	$ 1,312	$ 2,426	$ 882	$ 5,300

b. Related annual costs (estimated useful life of the facility--20 years)	
1. Facility operating costs	$ 15
2. Facility maintenance and repair costs	21
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	14
7. Other costs	0
Total related annual costs	$ 50

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. **Total project funding**
   (1) Total facility costs
      (a) Line item--Total cost of design procurement and construction of the project is $3,500,000.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.

   (2) Other project costs
      (a) R&D necessary to complete construction--None.
      (b) Conceptual design--$218,000 for the completed conceptual design.
      (c) Decontamination & decommissioning (D&D)--None.
      (d) NEPA documentation costs--Costs of $5,000 for a draft Exclusion determination form and the Information Bulletin, for the proposed upgrades to the B-Plant Ventilation System.
      (e) Other project related costs--$1,577,000 for operating contractor support for the Preliminary Safety Analysis Report, Value Engineering Report, site investigations, vent requirements study, Quality Assurance Program Plan, Project Management Plan, design reviews, Fire Hazards Analysis, construction support, close out and start up reviews, and operator training.

b. **Related annual costs**
   (1) Facility operating costs--$15,000 for approximately 360 man-hour/year routine daily surveillance for the new filter system and reduced surveillance of the retired system. The new filter system replaces the existing B-Plant canyon ventilation system filter building. These costs are approximately $77,000 less than the facility it replaces.
   (2) Facility maintenance and repair costs--$21,000 for approximately 160 man-hour/year for instrument calibration, filter changeout, flow penetration testing, and corrective maintenance including materials. These costs are approximately the same as the facility it replaces.
   (3) Programmatic operating expenses directly related to the facility--None.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--None.
   (5) GPP or other construction related to programmatic effort--None.
   (6) Utility costs--$14,000 for power to operate the project equipment including the exhaust fans, inlet air pre-heater, lighting and instrumentation. These costs are approximately $15,000 less than the facility it replaces.
   (7) Other costs--None.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin)

NUCLEAR MATERIAL AND FACILITY STABILIZATION
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project:	Spent Nuclear Fuels Canister Storage and Stabilization Facility, Richland, Washington	2a. Project No.: 96-D-406 2b. Construction Funded	ADS# RL-6696-1

SIGNIFICANT CHANGES

- Total estimated cost decreased from $135,800,000 to $111,416,000 as a result of refined stabilization facility projections.
- Total project cost decreased from $180,780,000 to $146,263,000 as a result of refined stabilization facility projection plans will be fuel stabilization achieved by two processes; cold vacuum drying and hot conditioning.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in left margin)

NUCLEAR MATERIAL AND FACILITY STABILIZATION
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Spent Nuclear Fuels Canister Storage Stabilization Facility, Richland, Washington

2a. Project No.: 96-D-406 ADS# RL-6696-1
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 24 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $135,800
Total Project Cost (TPC) -- $180,780

4a. Date Physical Construction Starts: 3rd Qtr. FY 1996

4b. Date Construction Ends: 2nd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $111,416
TPC -- $146,263

7. Financial schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1996	$ 42,000	$ 0	$ 42,000	$ 31,000
1997	60,672	0	60,672	54,000
1998	8,744	0	8,744	26,416

8. Project Description, Justification and Scope

This Major System Acquisition (MSA) project consists of all the activities necessary to safely stabilize and store approximately 2,100 metric tons of spent N-Reactor fuel currently stored at the 100 K East and West facilities. There are three specific subprojects within this MSA as follows:

a. Subproject #01 - Canister Storage Building (CSB) (W-379)

TEC	FY 1995	FY 1996	FY 1997	FY 1998	Outyears	Construction Start - Completion Dates
$79,530	$ 0	$38,900	$39,305	$ 1,325	$ 0	2nd Qtr. FY 1996 4th Qtr. FY 1998

1. Title and Location of Project:	Spent Nuclear Fuels Canister Storage Stabilization Facility, Richland, Washington (Continued)	2a. Project No.: 96-D-406 2b. Construction Funded	ADS# RL-6696-1

8. Project Description, Justification and Scope (Continued)

The Canister Storage Building (CSB) from Hanford's Waste Vitrification Plant (HWVP) Project will be modified to provide long-term, dry storage for spent fuel removed from the 100 K East and West basins. The facility will also serve as a staging area for the fuel prior to stabilization.

This facility is envisioned to consist of 2,900 square meters (31,580 square feet), of which approximately 2,310 square meters (23,160 square feet) will be available for storage and 590 square meters (6,420 square feet) for loading, handling and service areas.

Following hot conditioning, fuel returns to the Canister Storage Building where it will be placed, via a multi-canister overpack (MCO) handling machine, in storage positions and cooled by natural outside air circulation. The fuel could remain in storage for up to forty years or until a suitable repository becomes available. Following fuel removal, the facility will be deactivated and decommissioned.

Currently, spent Hanford N Reactor fuel is stored in unlined, concrete water-filled basins that are not seismically qualified and are located approximately 93.3 meters (100 yards) from the Columbia River. Any significant seismic event could cause a very serious hazard to the environment and potentially place the health and well being of the surrounding community in jeopardy.

Conditioning Facilities

Planned conditioning provides facilities and process equipment which reduces N Reactor spent nuclear fuel volatility in preparation for dry stockpiling at Hanford's Canister Storage Building (CSB).

These conditioning activities will consist of a cold vacuum drying and hot conditioning process.

Fuel conditioning is achieved by a process described in Hanford's July 1995 Spent Nuclear Fuel (SNF) Project Integrated Process Strategy for K-Basins. This strategy removes K-Basin spent nuclear fuel from existing storage canisters, washes the material to eliminate loose particulate (sludge), and reracks it into multi-canister overpacks (MCO'S) prior to removal from the Basins. Multi-canister overpacks then will be transferred to the Cold Vacuum Drying Module located in Hanford's 100 K area. Here bulk water is removed and the fuel vacuum dried. Next, those overpacks are transported to the Canister Storage Building, located in this site's central 200 area, where containers will be staged to wait for hot conditioning. A subsequent process removes chemically bounded water and decomposes uranium hydride, thereby preparing the fuel for storage. After hot conditioning, multi-canister overpacks are sealed and stored to await their final disposition.

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8. Project Description, Justification and Scope (Continued)

The FY 1997 appropriation will continue CSB construction; and design and construction activities of these conditioning facilities.

b. Subproject #02 - Cold Vacuum Drying Facility (W-441)

TEC	FY 1995	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Dates
$16,076	$ 0	$ 2,300	$13,660	$ 116	$ 0	1st Qtr. FY 1997 3rd Qtr. FY 1998

A Cold Vacuum Drying Station receives each multi-canister overpack installed inside its transport cask. Overpacks will then be connected to a cold vacuum drying system while still residing in their casks. The cold vacuum drying system drains water from the multi-canister overpack and vacuum dries the fuel to remove all but chemically bounded water. Later, these overpacks will be transported to Hanford's Canister Storage Building (CSB).

FY 1997 appropriation will be used for the initiation of the Cold Vacuum Drying Facility Construction

c. Subproject #03 - Hot Conditioning Facility (W-484)

TEC	FY 1995	FY 1996	FY 1997	FY 1998	Outyear	Construction Start - Completion Dates
$15,810	$ 0	$ 800	$ 7,707	$ 7,303	$ 0	1st Qtr. FY 1997 3rd Qtr. FY 1998

Hot conditioning will take place in an annex contiguous with Hanford's Canister Storage Building (CBS). Multi-canister overpacks (MCO) are brought, by the Storage Building's MCO Handling Machine, to a work station where they are connected for hot conditioning. This conditioning process will consist of heating spent fuel to approximately 300 degrees celsius, and placing it under a vacuum which removes chemically bounded water and decomposes any uranium hydride. A passivation step may be added after the hot vacuum stage to reduce overall fuel reactivity. Following hot conditioning, multi-canister overpacks are returned to the Canister Storage Building via MCO Handling machine for placement into storage.

The FY 1997 appropriation will be used to perform Title I design work.

1. Title and Location of Project:	Spent Nuclear Fuels Canister Storage Stabilization Facility, Richland, Washington (Continued)	2a. Project No.: 96-D-406 2b. Construction Funded	ADS# RL-6696-1

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management costs		$ 30,498
1. Engineering design and inspection at approximately 28 percent of construction costs, Item c	$ 19,850	
2. Construction Management Costs	3,543	
3. Project management at 10 percent of construction costs (item c)	7,105	
b. Land and land rights		0
c. Construction costs		72,120
1. Improvements to land	0	
2. Buildings	44,095	
3. Other structures	0	
4. Utilities	2,120	
5. Special facilities	25,905	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$102,618
i. Contingencies at approximately 9 percent of above costs		8,798
j. Total line item cost (section 11.a.1.[a])		$111,416
k. Less: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$111,416

2572

1. Title and Location of Project: Spent Nuclear Fuels Canister Storage Stabilization Facility, Richland, Washington (Continued)

2a. Project No.: 96-D-406 ADS# RL-6696-1
2b. Construction Funded

10. Method of Performance

Design and inspection shall be performed under a negotiated contract with an architect/engineer. Construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1996	FY 1997	FY 1998	Outyears	TOTAL
a. Total facility costs						
(1) Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 31,000	$54,000	$26,416	$ 0	$111,416
(b) Plant Engineering and Design	0	0	0	0	0	0
(c) Operating Expense Funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 0	$ 31,000	$54,000	$26,416	$ 0	$111,416
(2) Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	1,929	1,433	0	0	0	3,362
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	100	270	629	245	0	1,244
(e) Other project-related costs	4,240	4,082	12,078	9,841	0	30,241
(f) Total other project costs	$ 6,269	$ 5,785	$12,707	$10,086	$ 0	$ 34,847
(g) Total project costs	$ 6,269	$ 36,785	$66,707	$36,502	$ 0	$146,263
(h) Less: Non-federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 6,269	$ 36,785	$66,707	$36,502	$ 0	$146,263

2573

1. Title and Location of Project:	Spent Nuclear Fuels Canister Storage Stabilization Facility, Richland, Washington (Continued)	2a. Project No.: 96-D-406 2b. Construction Funded	ADS# RL-6696-1

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual costs (estimated useful life of each facility--40 years Canister Storage Building, 3 years-Cold Vacuum Facility, and 2 years - Hot Conditioning Facility).

(1) Facility operating costs	$ 5,300 a/
(2) Facility maintenance and repair costs	0
(3) Programmatic operating expenses directly related to the facility	0
(4) Capital equipment not related to construction but related to the programmatic effort in the facility	0
(5) GPP or other construction related to the programmatic effort in the facility	0
(6) Utility costs	0
(7) Other costs	0
Total related annual costs	$ 5,300

a/ The estimated facility operating costs have been averaged over a 40 year total service life period.

2574

1. Title and Location of Project:	Spent Nuclear Fuels Canister Storage Stabilization Facility, Richland, Washington (Continued)	2a. Project No.: 96-D-406 2b. Construction Funded	ADS# RL-6696-1

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   (1) Total facility costs
      (a) Line item--$111,416,000 is the total estimated cost for the facility including the buildings, grounds and equipment and utilities.
      (b) PE&D--None.
      (c) Expense-funded equipment--None.
      (d) Inventories--None.
   (2) Other project costs (All costs are escalated to the year of expenditure)
      (a) R&D necessary to complete construction--NONE.
      (b) Conceptual design--Costs of approximately $3,362,000 to develop the scope of the project, design parameters, technical feasibility, and to improve the project cost and schedule estimates.
      (c) Decontamination & decommissioning (D&D)--NONE
      (d) NEPA documentation costs--$1,244,000. The Canister Storage Building will be discussed in the K-Basins EIS. The Record of Decision was due out in March 1996.
      (e) Other project-related costs--Costs of approximately $30,241,000 are expected to perform startup functions and to develop the functions and requirements, Safety and Regulatory, and validation documentation.

b. Related annual costs
   (1) Facility operating costs--Facility operating costs are expected to start in FY 1998 at $11,716,000, increase to $22,677,000 in FY 1999, then start to decrease to $13,835,000 in FY 2000 with continued decrease to about $1,800,000 in FY 1995 dollars over the next 37 years. The Canister Storage Building replaces 100 K area basins, which currently requires in excess of $44,000,000 to operate. The cost of the Canister Storage Building operations, both near and long term, are considerably less than the K-Basin operations costs.
   (2) Facility maintenance and repair costs--The facility maintenance and repair costs are included in the operating costs.
   (3) Programmatic operating expenses directly related to the facility--None.
   (4) Capital equipment not related to construction but related to the programmatic effort in the facility--None.
   (5) GPP or other construction related to the programmatic effort in the facility--None.
   (6) Utility costs--None.
   (7) Other costs--None.

1. Title and Location of Project: Electrical and Utility Systems Upgrade, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho

2a. Project No.: 96-D-464 ADS# ID-6329-WN
2b. Construction Funded

SIGNIFICANT CHANGES

- Total estimated cost decreased from $75,000,000 to $62,280,000 as a result of a reduction in scope.
- Total project cost decreased from $92,800,000 to $76,690,000 as a result of a reduction in scope.
- Construction of the sanitary sewer, potable water, and water meters has been removed from the scope of this project as a result of a re-evaluation of the Idaho Chemical Processing Plant needs versus requirements of infrastructure.

2576

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

NUCLEAR MATERIAL AND FACILITY STABILIZATION
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Electrical and Utility Systems Upgrade, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho

2a. Project No.: 96-D-464 ADS# ID-6329-WN
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Quarter FY 1996

3b. A-E Work (Titles I and II) Duration: 30 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $75,000
Total Project Cost (TPC) -- $92,800

4a. Date Physical Construction Starts: 3rd Quarter FY 1997

4b. Date Construction Ends: 1st Quarter FY 2002

6. Current Cost Estimate: a/
TEC -- $62,280
TPC -- $76,690

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1996	$ 4,952	$ -440 b/	$ 4,512	$ 4,512
1997	10,440	0	10,440	9,376
1998	18,080	0	18,080	17,723
1999	13,400	0	13,400	14,398
2000	15,520	0	15,520	10,411
2001	328	0	328	5,422
2002	0	0	0	438

a/ The TEC and TPC has been reduced (TEC $75,000,000 to $62,280,000 and TPC $92,800,000 to $76,690,000). The reductions are a result of FY 1996 indirect cost reductions associated with Nuclear Material and Facility Stabilization productivity initiative, and deletion of the sanitary sewer, potable water, and water meter work scope.

b/ Directed reduction of $440,000 in FY 1996 to meet the uncosted reduction imposed by Congress.

2577

8. Project Description, Justification and Scope

The Electrical and Utility Systems Upgrade (EUSU) project will upgrade the Idaho Chemical Processing Plant (ICPP) electrical utility system by correcting high risk environmental, health, and life safety deficiencies. Correction of these deficiencies will reduce health and safety risks and provide safe and reliable utilities to support the ICPP mission. The ICPP electrical utility supply and distribution systems provide the infrastructure necessary to support plant operations. The system is outdated, overloaded, and not in compliance with DOE orders, or national codes and standards. These factors, combined with plant-wide growth, have utilized the capacity of the electrical distribution system and increased the potential health and safety risks associated with long-term use and maintenance of this ICPP utility system.

The scope of this project includes upgrades to normal and standby power/electrical systems. The system upgrades, improvements, and corrections listed in order of priority, include:

a. installation of a new 13.8 kilovolt-amperes (kVA) high voltage electrical ductbank and manhole system (approximately 17,000 linear feet) to correct high- low voltage separation code compliance and safety problems;
b. upgrading, relocating, or new installation of approximately ten 13.8 kVA substations and approximately ten load centers to eliminate overloaded conditions on existing electrical distribution equipment;
c. upgrading the existing standby power network and control system and installation of 1-2 new 1750 KVA (nominal) diesel generators to provide reliable standby power during commercial power outages to equipment that provides for containment and control of radioactive and fissile materials, environmental monitoring, security functions, or personnel and property protection;
d. replacement of approximately two hundred 20-40 year old panelboards and associated switchgear in 20-25 existing buildings that presently present a significant fire hazard;
e. reconfiguration of electrical service equipment in approximately 4-8 existing buildings to eliminate multiple electric service entrances that violate code and constitute fire response safety hazards;

The ICPP electrical utility system provides the infrastructure services required to support the safe operation and maintenance of the site facilities. The EUSU project feasibility studies and various Lockheed Idaho Technologies Company (LITCO) self assessment studies have shown that the electrical utility distribution system at the ICPP, because of its age, use, and rapid growth in utility requirements, is unsafe, unreliable, or violate DOE orders, DOE-ID A-E standards, and industry codes and standards, with significant health and safety implications. These utility systems are also rapidly approaching severe overload conditions. These high risk deficiencies, along with the system overload, jeopardize the ability of the electrical utility system to support the DOE mission at the ICPP to safely receive, inspect, store, and condition for disposal spent nuclear fuel and manage radioactive wastes generated from fuel handling activities while protecting the safety of the workers, the public, and the environment.

2578

8. Project Description, Justification and Scope (Continued)

The ICPP electrical power distribution system is approaching its design capacity. In April 1992, the ICPP power usage reached its highest level (13 MVA, 93 percent of rated 14 MVA capacity) since the plant began operations, even though all fuel processing has been discontinued. The capacity of the eight existing 13.8 kV feeders in the electrical power distribution system will be overloaded or at rated capacity by 1995. These feeders are expected to become overloaded as new facilities and equipment loads are added to support the new ICPP mission. The majority of the ICPP electrical manholes presently contain a mixture of high-voltage, low-voltage power, and low-voltage non-power (communication, alarms, security) circuits without proper separation, which is prohibited by the National Electric Code (NEC) and other safety codes. Several of the existing distribution centers exceed their rated capacities during peak load periods. Several load centers have insufficient electrical current interrupting ratings which constitute a potential explosion and fire hazard. In many facilities, power is supplied to many different locations within a building representing a hazard during a fire or maintenance activities. Many of the service entrance conductors and internal distribution panels are not adequately protected against short circuit conditions. Many panels, raceways, and conductors are not installed in accordance with safe NEC required practices. Two of the four primary standby generators have connected loads several times over their continuous ratings with expected maximum demand exceeding the rated capacities. Such deficiencies represent potential safety hazards to operational and maintenance personnel. Also, many of these 40 year old facilities have deteriorating and obsolete equipment with spare parts no longer available from suppliers.

Upgrades to the ICPP electrical utility distribution system is essential to: (1) provide for safe operation of site facilities vital to the ICPP mission, (2) provide a safe work place for employees, (3) minimize risk of property damage as well as damage to the environment, and (4) provide adequate capacity to support the DOE mission.

FY 1997 appropriation will be used for Title I design work.

2579

1. Title and Location of Project: Electrical and Utility Systems Upgrade, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho (Continued)

2a. Project No.: 96-D-464
2b. Construction Funded

ADS# ID-6329-WN

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 16,671
1. Engineering design and inspection at approximately 21 percent of construction costs (item c)	$ 7,351	
2. Construction management costs at approximately 24 percent of construction costs (item c)	8,270	
3. Project management at 3 percent of construction costs (Item c)	1,050	
b. Land and land rights		0
c. Construction costs		34,624
1. Improvements to land	7,333	
2. Buildings	2,551	
3. Other structures	0	
4. Utilities	24,740	
5. Special facilities	0	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		612
h. Subtotal (a through g)		$ 51,907
i. Contingencies at approximately 20 percent of above costs		10,373
j. Total line item cost (Section 11.a.1.[a])		$ 62,280
k. Less: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$62,280

Note: Revised estimate based on completed advanced conceptual design. Escalation for each activity is calculated as the sum of the yearly allocated expenditure times the yearly compounded escalation rate of 3.0 percent.

10. Method of Performance

Design will be performed by the operating contractors Facility Engineering (design) Organization. Construction and procurement will be accomplished by fixed price contracts and subcontracts awarded on the basis of competitive bidding to the maximum extent possible. Title III inspection will be accomplished by the operating contractor.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	Total
a. Total project costs									
1. Total facility costs									
(a) Line item (Section 9.j.)	$ 0	$ 4,512	$ 9,376	$ 17,723	$ 14,398	$ 10,411	$ 5,422	$ 438	$62,280
(b) Plant Engineering and Design	0	0	0	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 4,512	$ 9,376	$ 17,723	$ 14,398	$ 10,411	$ 5,422	$ 438	$ 62,280
2. Other project costs									
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	4,623	554	0	0	0	0	0	0	5,177
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0	0	0	0
(d) NEPA documentation costs	83	0	0	0	0	0	0	0	83
(e) Other project-related costs	0	812	1,286	2,556	2,065	908	910	613	9,150
(f) Total other project costs	$ 4,706	$ 1,366	$ 1,286	$ 2,556	$ 2,065	$ 908	$ 910	$ 613	$ 14,410
(g) Total project cost	$ 4,706	$ 5,878	$ 10,662	$ 20,279	$ 16,463	$ 11,319	$ 6,332	$ 1,051	$ 76,690
(h) Less: Non-Federal contribution	0	0	0	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 4,706	$ 5,878	$ 10,662	$ 20,279	$ 16,463	$ 11,319	$ 6,332	$ 1,051	$ 76,690

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual costs (estimated useful life of facility--20 to 40 years)

1. Total operating costs	$ 800
2. Facility maintenance and repair costs	750
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic efforts in the facility	0
5. GPP or other construction related to programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total other related annual costs	$ 1,550

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item--The TEC is based on a detailed conceptual design cost estimate validated by a team of INEL cost estimators.
(b) Plant Engineering and Design--None.
(c) Expense-funded equipment--None.
(d) Inventories--None.
2. Other project costs
(a) R&D necessary to complete construction--None.
(b) Conceptual design--Spending in FY 1993, FY 1994, FY 1995, and FY 1996 include costs for feasibility studies, conceptual design, advanced conceptual design, project planning, cost and schedule planning, project plan and charter, project management plan, quality assurance program plan, project design criteria, special studies, and value engineering ($5,177,000).
(c) Decontamination and decommissioning (D&D)--None.
(d) NEPA documentation costs--An Environmental Checklist/Request for Categorical Exclusion was submitted in FY 1994. The NEPA Categorical Exclusion (CX) was approved March 7, 1994. No further NEPA funds are anticipated for this project ($83,000).
(e) Other project related costs--Funds are required to support the following activities: (1) project planning, (2) construction management planning, (3) QA/inspection planning, (4) project management for design support, construction support, testing, and startup, (5) safety analyses and reports, (6) readiness reviews for startup and operation, (7) operating tests, (8) training of operating and maintenance personnel, and (9) general technical support and software development ($9,150,000).

b. Related annual costs
1. Total facility operating costs include operating labor costs. Facility maintenance and repair costs include spare parts and maintenance costs.

2582

1. Title and Location of Project:	Security Facilities Consolidation, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho a/	2a. Project No.: 95-D-456 2b. Construction Funded	ADS# ID-6326-WN

SIGNIFICANT CHANGES

- Total estimated cost decreased from $18,500,000 to $15,100,000 as a result of a reduction in scope.
- Total project cost decreased from $22,732,000 to $18,901,000 as a result of a reduction in scope.
- As a result of a re-evaluation of the security system requirements at the Idaho Chemical Processing Plant, redesign of a single fence protected area, with one new Instrusion Detection System, will be installed/constructed saving an estimated $3.4 million.

2583

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

NUCLEAR MATERIAL AND FACILITY STABILIZATION
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Security Facilities Consolidation, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho a/

2a. Project No.: 95-D-456 ADS#ID-6326-WN
2b. Construction Funded

3a. Date A-E Work Initiated: 2nd Quarter FY 1995

3b. A-E Work (Titles I & II) Duration: 45 months

5. Previous Cost Estimate
Total Estimated Cost (TEC) -- $18,500
Total Project Cost (TPC) -- $22,732

4a. Date Physical Construction Starts: 1st Quarter FY 1996

4b. Date Construction Ends: 2nd Quarter FY 1999

6. Current Cost Estimate:
TEC -- $15,100
TPC -- $18,901 a/

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1995	$ 986	$ 0	$ 986	$ 554
1996	8,382	0	8,382	8,006
1997	4,645	0	4,645	4,190
1998	487	0	487	1,750
1999	600	0	600	600

a/ A Baseline Change Proposal has been approved for the reduction of scope for the redesign of single fence protected areas, with one new Intrusion Detection System, for protection of Category I Special Nuclear Materials at the ICPP--project scope was revised to incorporate a graded approach when complying with DOE Orders.

2584

1. Title and Location of Project:	Security Facilities Consolidation, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho (Continued)	2a. Project No.: 95-D-456 2b. Construction Funded	ADS# ID-6326-WN

8. Project Description, Justification and Scope

This project will construct new facilities and install new equipment to support the ICPP security organization by resolving DOE Order compliance (DOE Orders 5632.1C and 5500.3A), inspection and evaluation findings, and address life expectancy/life cycle replacement concerns. The project will also accommodate changes to the ICPP mission, decrease plant operating costs, and support environmental remediation projects.

During the mission execution of the Idaho Chemical Processing Plant (ICPP) Category I and II quantities of Special Nuclear Material (SNM) will be consolidated at two existing ICPP storage facilities. The project will construct two new Protected Area security perimeters, complying with DOE Order 5632.2A at the existing storage facilities. Security perimeters will include guardhouses, a central alarm station (CAS), complementary intrusion detection systems at each perimeter, security fencing, lighting systems, vehicle barriers, a closed-circuit television system for alarm assessment, and a security alarm control system (SACS) to monitor all security sensors and assessment systems. Guardhouses will provide space for access control equipment to monitor personnel and vehicular access into the Protected Areas, and will be served with standard utilities. Construction of new security upgrades at these two locations will allow deactivation, by this project, of the existing security perimeter surrounding the overall ICPP site. Classified interests located outside of the new Protected Areas will be consolidated at approximately six existing facilities.

The SACS will monitor, control, and assess security alarms and video information received from new intrusion detection and CCTV systems located in the Protected Areas, and existing security systems throughout the ICPP. The SACS will consist of redundant computers, video assessment equipment (cameras, monitors, controllers, recorder, switches, fiber-optic distribution), and alarm system interfaces. Security lighting will be installed at the new Protected Areas to support CCTV operations and security inspections. Security systems will be supplied with commercial, optional standby, and uninterruptible electrical power.

Three existing access control facilities at the present ICPP Protected Area security perimeter will be remodeled to function as Property Protection Area entrances. These facilities will support required security inspections, provide a radiological contamination control point, and support personnel accountability during emergency evacuations.

Existing security lighting, intrusion detection and assessment systems, and the SACS have reached their design life expectancies and require life cycle replacement. System manufacturers no longer support the dated equipment with service contracts or provide replacement spare parts. Studies, including General Accounting Office report GAO/RCED-95-183, indicate that this project will reduce security operating costs at the ICPP by approximately $3,900,000 per year and result in a project payback period of five years.

FY 1997 appropriation will be used for Title I and II design work.

1. Title and Location of Project: Security Facilities Consolidation, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho (Continued)

2a. Project No.: 95-D-456
2b. Construction Funded

ADS# ID-6326-WN

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 3,236
1. Engineering design and inspection at approximately 31 percent of construction costs (item c)	$ 1,278	
2. Construction management costs at approximately 22 percent of construction costs (item c)	895	
3. Project management at 26 percent of construction costs (item c)	1,063	
b. Land and land rights		0
c. Construction costs		4,062
1. Improvements to land	207	
2. Buildings	1,810	
3. Other structures	0	
4. Utilities	1,945	
5. Special facilities	100	
d. Standard equipment		5,285
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 12,583
i. Contingency at approximately 20 percent of above costs		2,517
j. Total line item cost (Section 11.a.1.(a))		$ 15,100
k. Less: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 15,100

10. Method of Performance

Design will be performed by an architectural-engineering (A-E) organization. To the extent feasible, construction and procurement shall be accomplished by fixed price contracts and subcontracts awarded on the basis of competitive bidding. Title III inspection will be accomplished by the operating contractor.

2586

1. Title and Location of Project: Security Facilities Consolidation, Idaho Chemical Processing Plant, Idaho National Engineering Laboratory, Idaho (Continued)

2a. Project No.: 95-D-456
2b. Construction Funded

ADS# ID-6326-WN

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	Total
a. Total project costs							
1. Total facility costs							
(a) Line item (Section 9.j.)	$ 0	$ 554	$ 8,006	$ 4,190	$ 1,750	$ 600	$ 15,100
(b) Plant Engineering and Design	0	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0	0
(e) Total facility cost (Federal and Non-Federal)	$ 0	$ 554	$ 8,006	$ 4,190	$ 1,750	$ 600	$ 15,100
2. Other project costs							
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	2,279	0	0	0	0	0	2,279
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0	0
(d) NEPA documentation costs	61	0	0	0	0	0	61
(e) Other project-related costs	0	222	332	314	233	360	1,461
(f) Total other project costs	$ 2,340	$ 222	$ 332	$ 314	$ 233	$ 360	$ 3,801
(g) Total project cost	$ 2,340	$ 776	$ 8,338	$ 4,504	$ 1,983	$ 960	$ 18,901
(h) Less: Non-Federal contribution.	0	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 2,340	$ 776	$ 8,338	$ 4,504	$ 1,983	$ 960	$ 18,901

b. Related annual costs (estimated useful life of the facility--20 to 40 years)	
1. Facility operating costs	$ 1,000
2. Facility maintenance and repair costs	500
3. Programmatic operating expenses directly related to the facility	300
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to programmatic effort in the facility	0
6. Utility costs	20
7. Other costs	0
Total related annual costs	$ 1,820

25287

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item--The TEC is based on a detailed conceptual cost estimate, dated February 4, 1994. Estimate is based on conceptual drawings, vendor quotations, experience gained from prior security-related projects, and work defined by the Conceptual Design Report.
   (b) Plant Engineering and Design--None.
   (c) Expense-funded equipment--None.
   (d) Inventories--None.
2. Other project costs
   (a) R&D necessary to complete construction--None.
   (b) Conceptual design--An estimated $2,279,000 was spent on the following activities: Conceptual design, advanced conceptual design, project management plans, quality assistance program plan, feasibility studies, value engineering, and project design criteria. Conceptual design costs include costs of redesign resulting from changes to project work scope and costs for installation of security items for testing and evaluation purposes.
   (c) Decontamination and decommissioning (D&D)--None.
   (d) NEPA documentation costs--$61,000 was spent on the: Environmental checklist/categorical exclusion, air quality permits, and permits to construct.
   (e) Other project related costs--An estimated $1,461,000 will be spent on the following activities: (a) testing and startup support, (b) readiness reviews for startup and operation, (c) operating tests, (d) training of operating and maintenance personnel, and (e) technical support.

b. Related annual costs

Total facility operating costs include operating labor costs. Facility maintenance and repair costs include spare parts and maintenance costs. Programmatic operating expenses directly related to the facility include SACS software maintenance fee. Utility costs are estimated at $20,000.

2588

NUCLEAR MATERIAL AND FACILITY STABILIZATION
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Americium/Curium Vitrification, Savannah River Site, South Carolina	2a. Project No.: 96-EXP 2b. Operating Expense Funded

SIGNIFICANT CHANGES

- Total estimated cost increased from $26,000,000 to $29,230,000 based upon the completion of the Conceptual Design Estimate and a higher contingency than originally estimated.
- Total project cost increased from $35,700,000 to $40,500,000 based upon the completion of the Conceptual Design Estimate and a higher contingency than originally estimated.
- A-E Work (Titles I & II) duration has decreased from 16 months to 12 months.
- Date physical construction starts accelerated from 1st Qtr. FY 1997 to 3rd Qtr. FY 1996

2589

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

NUCLEAR MATERIAL AND FACILITY STABILIZATION
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Americium/Curium Vitrification, Savannah River Site, South Carolina

2a. Project No.: 96-EXP a/
2b. Operating Expense Funded

3a. Date A-E Work Initiated: 2nd Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: 12 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- 26,000
Total Project Cost (TPC) -- 35,700

4a. Date Physical Construction Starts: 3rd Qtr. FY 1996

4b. Date Phase I Construction Ends: 2nd Qtr. FY 1998

6. Current Cost Estimate:
TEC -- $29,230
TPC -- $40,500 b/

7. Financial schedule (Federal Funds)

Fiscal Year	Appropriation a/	Adjustments	Obligations	Costs
1996	$ 6,355	$ 0	$ 6,355	$ 6,355
1997	11,585	0	11,585	11,585
1998	11,290	0	11,290	11,290

a/ It should be noted that this project is justified as an operating expense funded project data sheet prepared to comply with the reviewed DOE Order 5100.3.
b/ Estimates of project costs are based on conceptual design.

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1. Title and Location of Project:	Americium/Curium Vitrification, Savannah River, South Carolina (Continued)	2a. 96-EXP 2b. Operating Expense Funded

8. Project Description, Justification and Scope

This project proposes the vitrification of the F-Canyon americium/curium (Am/Cm) solutions into borosilicate glass via a melter to be installed in the Multi-Purpose Processing Facility (MPPF) of the 221 F-Canyon. This project would provide for the development and design of the vitrification process, the design of the associated building infrastructure interfaces and the construction and installation of the equipment. This project would provide for the refurbishing of the existing MPPF facility to accommodate the new equipment.

Approximately 15,000 liters of solution containing the valuable isotopes 243 Am and 244 Cm have been accumulated in the 221 F-facility from recovery campaigns that began in the mid-1970s. These solutions have been identified in several documents as a vulnerability and as such require stabilization. These documents include the Defense Nuclear Facilities Safety Board Recommendation 94-1 and the Plutonium Environment, Safety and Health Vulnerability Assessment Report. There is no reasonable method to transport this material in solution from outside of F-Canyon. Due to intense radiation source of the material, a heavily shielded, remotely operated facility is required for handling and processing. There is no existing operable process to convert this solution to a solid form for safe storage or transport to the National Heavy Element and Advanced Neutron Sources (ANS) Programs at the Oak Ridge National Laboratory. An analysis of several alternatives has resulted in this project to develop the process to stabilize the solutions by vitrification into a glass form. The facility most suitable for installing vitrification equipment to stabilize this solution is the MPPF.

The FY 1997 funds will be used for the completion of Title II design and initial facility construction.

1. Title and Location of Project: Americium/Curium Vitrification, Savannah River, South Carolina (Continued)

2a. 96-EXP
2b. Operating Expense Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and Management costs		$ 5,540
1. Engineering design and inspection at approximately 32 percent of construction costs, Item c (Design, Drawings, and Specifications:	$ 4,015	
2. Construction Management Costs is approximately 7 percent of construction costs (item c)	870	
3. Project management is 5 percent of construction costs (item c)	655	
b. Land and land rights		0
c. Construction costs		12,640
1. Improvements to land	0	
2. Buildings	0	
3. Other structures (includes demolition)	0	
4. Utilities	0	
5. Special facilities	12,640	
d. Standard equipment		0
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
h. Subtotal (a through g)		$ 18,180
i. Contingencies at approximately 60 percent of above costs		11,050
j. Total line item cost (section 11.a.1.[a])		29,230
k. Less: Non-Federal contribution		0
l. Net Federal total estimated cost (TEC)		$ 29,230

The DOE escalation rates (percent per year) used for this estimate are as follows:

Fiscal Year	FY 1997	FY 1998
Escalation	3.0	3.1

The above estimate includes $720,000 for escalation.

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10. Method of Performance

Design and construction shall be performed by the Management and Operating (M&O) Contractor or a subcontractor under the direction of the M&O contractor.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	FY 1998	TOTAL
a. Total facility costs						
1. Total facility costs						
(a) Line item (Section 9.j.)	$ 0	$ 0	$ 6,355	$11,585	$11,290	$29,230
(b) Plant engineering and design	0	0	0	0	0	0
(c) Operating Expense Funded equipment	0	0	0	0	0	0
(d) Inventories	0	0	0	0	0	0
(e) Total facility costs (Federal and Non-Federal)	$ 0	$ 0	$ 6,355	$11,585	$11,290	$29,230
2. Other project costs						
(a) R&D necessary to complete project	$ 0	$ 0	$ 2,500	$ 400	$ 0	$ 2,900
(b) Conceptual design costs	0	0	300	0	0	300
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs	0	0	100	0	0	100
(e) Other project-related costs	0	0	1,440	3,260	3,270	7,970
(f) Total other project costs	$ 0	$ 0	$ 4,340	$ 3,660	$ 3,270	$11,270
(g) Total project costs	$ 0	$ 0	$10,695	$15,245	$14,560	$40,500
(h) Less: Non-federal contribution	0	0	0	0	0	0
(i) Net Federal total project cost (TPC)	$ 0	$ 0	$10,695	$15,245	$14,560	$40,500

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project -- 30 years)

1. Facility operating costs	$ 2,400
2. Facility maintenance and repair costs	100
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	100
7. Other costs	0
Total related annual funding	$ 2,600

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item--Narrative not required.
(b) PE&D--None.
(c) Expense-funded equipment--None.
(d) Inventories--None.

2. Other project costs
(a) R&D necessary to complete construction--Includes cost associated with the development of the vitrification process ($2,900,000).
(b) Conceptual design--The conceptual design was completed in November 1995 at a cost of $300,000.
(c) Decontamination & decommissioning (D&D)--None.
(d) NEPA documentation costs--Includes cost associated in complying with NEPA 1969 ($100,000).
(e) Other project-related costs--Includes all costs associated with the process development, training, procedures and facility support during construction of the project including Radcon protection.

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. **Related annual funding**

1. Facility operating costs--The operating life of this facility will be approximately 6 months. The staffing costs associated with this are expected to be $2,400,000 (12 FTEs).
2. Facility maintenance and repair costs--The costs for maintenance are expected to be approximately $100,000.
3. Programmatic operating expenses directly related to the facility--None.
4. Capital equipment cost not related to construction but related to the programmatic effort in the facility--None.
5. GPP or other construction related to the programmatic effort in the facility--None.
6. Utility costs--Costs will not exceed $100,000.
7. Other costs--None.

POLICY AND MANAGEMENT
PROGRAM MISSION

The Policy and Management activity provides the other contractual services funding required to plan, direct, and manage the Department's Environmental Management (EM) program. Program activities encompass the Administrative Support area including support for the Assistant Secretary's staff, other contractual services necessary to accomplish program activities that include overall management; acquisition of education and training activities for the entire EM program; and environmental policy recommendations and planning activities. Included in this decision unit is other contractual services funding for the Offices of Strategic Planning and Analysis, Stakeholders Affairs, and Safety and Health. The Office of Safety and Health was transferred from the Compliance and Program Coordination decision unit, and now reports directly to the Assistant Secretary. The balance of the decision unit was previously funded in the Analysis, Education, and Risk Management decision unit. Almost twenty-five percent of the FY 1997 request is transferred to the field to fund activities; such as, Native American grants, site specific Advisory Boards, and public participation.

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The GOALS of Policy and Management are to:

- strengthen partnerships with stakeholders
- open the decision-making process
- maintain a total life-cycle program cost estimate that will increase public confidence that tax dollars are being spent effectively and efficiently
- improve the system so that it is under control managerially and financially

The OBJECTIVES related to these goals are to:

- reduce information resource management and local area network costs
- improve the records management system
- reduce costs for travel, and indirect costs on management contracts
- develop and implement monthly consolidated financial reports
- improve the Headquarters award fee process
- improve customer satisfaction

PROGRAM MISSION: POLICY AND MANAGEMENT (continued)

PERFORMANCE MEASURES:

Performance measurement efforts are focused on processes such as management information and data systems development and contract reform, as well as ensuring that an adequate and competent workforce is restructured to better accomplish the mission. Improvements will focus on customer satisfaction and productivity efficiencies. Specific example performance measures are:

- Increased overall customer satisfaction
- Improved technical competencies
- Reduced costs of operations
- Limit information systems downtime to less than five per cent
- Reduce Headquarters support service contract costs

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

POLICY AND MANAGEMENT

PROGRAM FUNDING PROFILE

Program Activity	FY 1995 Comparable Appropriation	FY 1996(a) Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Adjusted	FY 1997 Budget Request
Policy and Management	$ 50,388	$ 0	$ 25,682	$ 25,682	$ 48,155
Subtotal, Operations & Maintenance	$ 50,388	$ 0	$ 25,682	$ 25,682	$ 48,155
Adjustment	$ 0	$ 0	$ 0	$ 0	$ 0
TOTAL, Policy and Management	$ 50,388	$ 0	$ 25,682	$ 25,682	$ 48,155

(a) With the exception of $1,854,000 transferring from Compliance and Program Coordination, all FY 1996 funding was appropriated in Analysis, Education and Risk Management.

(b) Public Law Authorization:
Public Law 95-91 Department of Energy Reorganization Act (1977)
Public Law 104-106 National Defense Authorization Act for FY 1996
Public Law 104-46 Energy and Water Development Appropriations Act for FY 1996

POLICY AND MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

PROGRAM FUNDING BY SITE

Field Offices	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office	$ 400	$ 0	$ 1,790	$ 1,790	$ 2,200
Chicago Operations Office	0	0	300	300	400
Idaho Operations Office	0	0	1,000	1,000	1,300
Oakland Operations Office	263	0	203	203	265
Oak Ridge Operations Office	30	0	250	250	260
Richland Operations Office	913	0	5,170	5,170	6,500
Savannah River Operations Office	0	0	625	625	800
Headquarters	48,782	0	15,874	15,874	35,775
All Other Sites	0	0	470	470	655
Subtotal	$ 50,388	$ 0	$ 25,682	$ 25,682	$48,155
Adjustment	0	0	0	0	
TOTAL	$ 50,388	$ 0	$ 25,682	$ 25,682	$48,155

POLICY AND MANAGEMENT

Program Performance Summary

I. Mission Supporting Goals and Objectives

The Policy and Management activity provides for the other contractual services funding required to plan, direct, and manage the Department's Environmental Management (EM) program. Program activities encompass the Administrative Support area including support for the Assistant Secretary's staff; other contractual services necessary to accomplish program activities that include overall management; acquisition of education and training activities for the entire EM program; and environmental policy recommendations and planning activities. Included in this decision unit is other contractual services funding requested for the Offices of Strategic Planning and Analysis, Stakeholder Affairs, and Safety and Health.

II. Funding Schedule:

Activity	FY 1995 Comparable	FY 1996 Comparable	FY 1997 Request	$ Change	% Change
Stakeholder Affairs	$ 4,848	$ 8,788	$ 10,500	$ + 1,712	$ + 19
Training and Education	$ 17,216	$ 2,607	$ 8,600	$ + 5,996	$ +230
Contractual Services	$ 28,324	$ 12,433	$ 24,669	$ +12,236	$ + 98
Office of Safety & Health	$ 0	$ 1,854	$ 4,386	$ + 2,532	$ +137
TOTAL	$ 50,388	$ 25,682	$ 48,155	$ +22,473	$ +88

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III. Performance Summary

STAKEHOLDER AFFAIRS

The Office of Stakeholder Affairs is responsible for coordinating all activities necessary to include a maximum level of public involvement in major EM decisions.

FY 1995 Accomplishments

- Established nine Site Specific Advisory Boards.
- Redirected the EM Advisory Board and the State and Tribal Government Working Group to more focused groups meeting more frequently.
- Designed, implemented, and evaluated the EM Public Participation Training Program.
- Established and coordinated quarterly meeting of public participation coordinators.

FY 1996 Accomplishments (To Date and Planned)

- Manage eleven Site Specific Advisory Boards.
- Ensure the continued effectiveness of the EM Advisory Board and the State and Tribal Government Working Group.
- Complete evaluations of EM advisory boards and EM's public participation program.
- Work with EM program offices to organize five national stakeholder debates/symposia on key EM issues.
- Expand the use of innovative communication technology to encourage stakeholder involvement, such as a World Wide Web page and increased teleconferencing.

FY 1997 Planned Accomplishments

• Manage eleven Site Specific Advisory Boards	$ 5,500
• Manage the EM Advisory Board and the State and Tribal Government Working Group	1,600
• Coordinate EM Public Participation Training Program and public participation efforts for the FY 1998 budget process	199
• Host five national stakeholder debate symposia on key EM issues	550
• Expand the use of innovative communication technology to encourage stakeholder involvement	750
• Manage 19 Native American Cooperative Agreements	1,901
Total, FY 1997 Stakeholder Affairs	$10,500

TRAINING AND EDUCATION

The predominant portion of the Training and Education program provides for the development of technical and professional training courses EM-wide for 3,000 Federal and 45,000 contractor personnel.

FY 1995 Accomplishments

- Developed DOE Federal Employee Project/Program management courses.
- Developed and delivered training programs for over 3,000 Federal personnel at Headquarters and field offices to improve the technical capabilities of managers and staff.
- Acquired unique, high-tech industry training courses.
- Provided assistance to develop and deliver training programs for over 45,000 contractor personnel at Field offices.

FY 1996 Accomplishments (To Date and Planned)

- Develop DOE Federal Employee Project/Program training and conduct it at all DOE sites. New courses have been designed to improve how DOE manages its projects (using the lessons learned from the many studies initiated to better define the project definition phase, the cost and schedule controls, and project execution) and how we control our contractors.
- Develop and deliver training programs for over 3,000 personnel at Headquarters and Field offices that improve the technical capabilities of managers and staff who provide direction and oversight at defense nuclear facilities.
- Acquire unique, high-tech industry training courses from external sources for use by EM to provide new skills needed to correct performance deficiencies.
- Provide assistance to develop and deliver training programs for over 45,000 contractor personnel at Field offices that will improve the technical capabilities of managers and staff who operate, maintain, and provide staff support at defense nuclear facilities.
- Perform analysis and development of alternative training delivery systems in order to reduce the costs associated with the classical methods of training such as travel, per diem, and instructor costs; includes self-paced instruction, computer-based instruction, and interactive video delivery.
- Assist and support selected colleges and universities in the vicinity of DOE facilities to establish and maintain two-year accredited associate degree technician programs related to the clean-up of DOE facilities. This is designed to support the worker retraining programs, as well as upgrade the technical capabilities of the DOE Federal and contractor work force.

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III. Performance Summary (continued)

FY 1997 Planned Accomplishments

• Continue the development of EM Project Management Training, Program Management Training, and other courses in the integrated Environmental Manager's Training Program, as outlined by the EM Quality Improvement Team, incorporating the latest guidelines and lessons learned; validate that Program and Project Management has improved	$ 1,360
• Reduce the costs of Management and Operating Contractor technical training and provide services to EM Operations Offices in streamlining required training	310
• Create an annual training plan to identify and establish the process for the current fiscal year training and management execution	195
• Implement, within EM, the Department's qualification commitments, contained in its Implementation Plan for Defense Nuclear Facility Safety Board Recommendation 93-3, for upgrading Federal Employee and manager technical competence	1,250
• Develop/modify and deliver technical training curricula and related materials in support of the Technical Qualifications Program, Technical Short Courses and EM specific mission needs, including self-study materials, on-the-job training, etc	5,115
• Identify courses for conversion, conduct media analysis, convert courses, and conduct pilot training sessions	370
Total, FY 1997 Training and Education	$ 8,600

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CONTRACTUAL SERVICES

Provides other contractual services for the EM Headquarters mission.

FY 1995 Accomplishments

- Produced the Baseline Environmental Management Report and provided general analytic and production support to the development of international waste management policy; including bilateral agreements on improving Environmental Management, the Trilateral Task Force on Arctic Contamination, and development of the International Radioactive Waste Management Treaty (Office of Strategic Planning and Analysis).
- Provided for EM-wide information management infrastructure activities.
- Provided editorial, technical, administrative, logistical, and analytical assistance for the EM program's financial/planning/tracking systems (Office of Budget).
- Evaluated EM management and productivity/efficiency performance and progress (Office of Engineering and Cost Management).
- Provided other contractual support for the Massie Chair of Excellence, and EM-1 through EM-12.

FY 1996 Accomplishments (To Date and Planned)

- Produce the Baseline Environmental Management Report and provide general analytic and production support to development of international waste management policy (Office of Strategic Planning and Analysis).
- Provide for EM-wide information management infrastructure activities.
- Provide editorial, technical, administrative, logistical and analytical assistance for the EM program's financial/planning/tracking systems (Office of Budget).
- Evaluate EM management and productivity/efficiency performance and progress (Office of Engineering and Cost Management).
- Provide other contractual services for the Massie Chair of Excellence, and EM-1 through EM-12.

III. Performance Summary (continued)

FY 1997 Planned Accomplishments

• Produce the Baseline Environmental Management Report and provide general analytic and production support to development of international waste management policy (Office of Strategic Planning and Analysis)	$ 7,000
• Provide for EM-wide information management infrastructure activities, maintenance of the Local Area Network, the Wide Area Network, video teleconferencing, the World-Wide Web, program management and control, and Internet. Also provides for hardware, software, maintenance, and upgrades	10,000
• Provide editorial, technical, administrative, logistical, and analytical assistance in the development and implementation of those processes and systems associated with the design, development, implementation, and administration of the EM program's financial/planning/tracking systems. This includes business process analysis, financial analysis, research, studies, documentation, and related public participation activities (Office of Budget)	900
• Develop EM-wide performance objectives and criteria for the conduct of EM Headquarters operations and for evaluating management and productivity/efficiency performance and progress (Office of Engineering and Cost Management)	1,000
• Provide other contractual services for the Massie Chair of Excellence, and EM-1 through EM-12	$ 5,769
Total, FY 1997 Contractual Services	$24,669

SAFETY AND HEALTH

The Office of Safety and Health ensures that programs and projects managed by the Assistant Secretary for Environmental Management are conducted with adequate protection of the safety and health of workers and the public.

FY 1995 Accomplishments

- Developed technical standards which guide the development and review of Health and Safety Plans.
- Administered the Secretarial Officer's Working Group for Safety Analysis Report coordination and review.
- Provided technical support for the development of Standards/Requirements Identification Documents.
- Developed and implemented the EM Safety and Health Performance Indexing Pilot Program.
- Produced the Workplace Safety Improvement Program to raise safety and health visibility to senior management, and to provide incentives for exemplary safety and health behavior, as well as consequences for poor behavior.
- Developed the EM Occupational Safety and Health Desk Reference.
- Provided technical support in the areas of fire protection, criticality safety, nuclear safety, radiation protection, occupational safety, and industrial hygiene to resolve EM program issues.
- Developed metrics for safety and health performance measurement and compiled supporting data.
- Prepared, printed, and distributed the Manager's Guide for S&H Walkthroughs.
- Supported the development of the "Necessary and Sufficient" Closure Process and initiated five pilots to validate the process which will allow transition to standards-based management.
- Made significant progress in meeting DNFSB Recommendation 90-2 commitments by issuing Standards/Requirements Program guidance and facilitating field implementation.
- Characterized the status of criticality safety programs complex-wide.

FY 1996 Accomplishments (To Date and Planned):

- Facilitate implementation of "Necessary and Sufficient" at EM sites.
- Develop an integrated line approach to implementing safety and health policy.
- Address urgent risk issues associated with Hanford Tank Farms and Rocky Flats authorization basis.
- Develop a Safety and Health Framework for EM.
- Develop and implement an operating protocol for line, field, and safety and health organizations.
- Provide line with analysis of safety and health resource expenditures by M&O contractors.
- Develop EM-wide Safety and Health Critical Few Performance Measures.
- Collect, summarize and report occurrence report data, identify adverse trends and recommend corrective actions.
- Proactively identify potential field safety issues, inform line, make recommendations, provide technical assistance.

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III. Performance Summary (continued)

FY 1997 Planned Accomplishments:

• Continue integration of safety and health function into HQ line organizations by implementation of roles and responsibilities and safety and health framework	$ 1,000
• Identify, interpret, provide guidance and technical support for urgent safety and health issues	1,500
• Continue facilitation of "Necessary and Sufficient" and authorization basis initiatives	800
• Integrate safety and health performance measures into line management planning and awards/penalties process	1,086
TOTAL, FY 1997 Office of Safety and Health	$ 4,386

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Explanation of Changes FY 1996 to FY 1997:

Increase of $14,000,000 in the Education and Training, Stakeholder Affairs, and Strategic Planning activities due to the inclusion of other services previously funded within the programs.

Increase of $3,000,000 in the Information Resources Management activity to the fund consolidation (including infrastructure upgrades) of EM offices into the Germantown building in FY 1997.

Increase of $1,000,000 in the Cost and Performance Analysis activity to support GPRA performance measurement, bench marking, and baselining.

Increase of $2,500,000 in the Safety and Health activity to resolve safety and health issues affecting worker and public safety.

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POLICY AND MANAGEMENT

CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY
(Dollars in Thousands)

Capital Operating Expenses:	FY 1995	FY 1996	FY 1997
GPP Estimate	$ 0	$ 0	$ 0
Capital Equipment Estimate	$ 1,200	$ 1,406	$ 2,810

POLICY AND MANAGEMENT

PROGRAM OBJECT CLASS SUMMARY
(Dollars in Thousands)

Direct Obligations:		FY 1995 Comparable	FY 1995 NonComparable	FY 1996 Comparable	FY 1996 NonComparable	FY 1997 Request
25.2	Other Services	$ 49,188	$ 0	$ 24,276	$ 0	$ 45,345
31.0	Equipment	1,200	0	1,406	0	2,810
92.0	Subtotal, Direct Obligations	$ 50,388	$ 0	$ 25,682	$ 0	$ 48,155
		0	0	0	0	0
	Reimbursable Program	$ 50,388	$ 0	$ 25,682	$ 0	$ 48,155
99.9	TOTAL OBLIGATIONS					

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ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM

PROGRAM MISSION

"There is growing evidence of a brewing R&D crisis in the United States--the result of the cutbacks and refocusing in private-sector R&D and reductions in Federal R&D...The system suffers from a lack of consistent attention to longer-term needs and problems, a shrinking population of scientists and engineers available to perform high-quality R&D, and a loss of incentives and opportunities for a new generation of technologists." (C&E News, June 26, 1995, p. 24)

The need to build a stronger scientific basis for the Environmental Management effort has been established in a number of recent studies and reports. Among the important observations and recommendations made by the Galvin Commission ("Alternative Futures for the Department of Energy National Laboratories", February 1995) are the following:

> "Probably the most important reason behind the slow pace of assessment and cleanup [of DOE waste sites] is the low quality of science and technology that is being applied in the field...There is a lack of realization that many--and some experts believe most--existing remediation approaches are doomed to technical failure. Others would require unacceptable expenditures and much extended time to reach their stated objectives...There is a particular need for long-term, basic research in disciplines related to environmental cleanup...Adopting a science-based approach that includes supporting development of technologies and expertise...could lead to both reduced cleanup costs and smaller environmental impacts at existing sites and to the development of a scientific foundation for advances in environmental technologies."

In response to the Galvin Commission Report, as well as other recent recommendations, the Office of Environmental Management (EM) has established a Basic Science Program. The mission of this program is to:

- Develop and implement a targeted long-term basic research agenda for environmental problems so that "transformational" or breakthrough approaches will lead to significantly long-term reduced cleanup costs and risks to workers and public;
- "Bridge the gap" between broad fundamental research that has wide-ranging applicability such as that performed in DOE's Office of Energy Research, and needs-driven applied technology development that is conducted in EM's Office of Technology Development;
- Serve as a stimulus for focusing the nation's science infrastructure on critical national environmental management problems.

The Basic Science Program has been competitive and offered to the DOE national laboratories, as well as academic and industrial organizations. To ensure that the program is mission-oriented and that its achievements are recognized and used by EM, the Basic Science Program is closely integrated with EM's Technology Development Focus Areas and is also closely coordinated with the Office of Energy Research to ensure use of the broad-based fundamental research and development supported by that office.

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PROGRAM MISSION - ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM (cont'd)

Planning for the Basic Science Program began in 1995. The program responds to a congressional mandate stated in the conference report on the FY 1996 Energy and Water Appropriations Act, to focus on long-term, basic science research as the key to developing innovative and cost-effective cleanup methods. The decision to create the program also follows through on recommendations from stakeholders groups, including environmental experts from the National Academy of Sciences and the Secretary of Energy Advisory Board (SEAB). The program was originally developed by a team that includes representatives from EM and Energy Research, with advice from the DOE national laboratories. The following activities have taken place in FY 1995 and will take place during FY 1996:

- EM, Energy Research, and Laboratory team recommends science areas for FY 1996;
- Develop program plan in collaboration with the Office of Energy Research;
- Establish peer review procedure for selecting FY 1996 and FY 1997 EM science areas;
- Establish EM Science Advisory Board as a standing committee under the existing EM Advisory Board;
- Continue to involve the National Academy of Sciences for programmatic review;
- Issue call for proposals for FY 1996 and FY 1997 work in each primary science area;
- Convene peer review panels to review and select proposals to be funded in FY 1996 and FY 1997.
- Work with stakeholders to obtain input for developing site-specific research agendas.

The following primary science areas were included in the February 1996 call for applications.

- Advanced methods to accelerate treatment and immobilization of high-level wastes;
- New methods to characterize the hazards of landfills and liquid wastes;
- Emission-free destruction of organic wastes;
- Bioremediation;
- New concepts for waste stabilization of spent nuclear fuel; and
- Ecosystem restoration and management.

The following problem areas have been initially identified as problems in the EM Focus Areas where mission-oriented fundamental research is needed.

- Advanced characterization concepts that accelerate treatment and immobilization of high-level wastes. Pretreatment and separation concepts that lead to significantly less immobilized high-level waste requiring long-term isolation. Innovative separations for solids and for liquids, needed to significantly reduce projected high-level waste volume.

- In situ characterization of dense non-aqueous phase liquid to allow comparative risk assessments of alternative treatment methods. In situ immobilization of subsurface contaminants, improved immobilization of long-lived contaminants can effect pump and treat costs. Permeable in situ treatment barriers and factors governing in situ treatment processes; generally unsatisfactory alternatives exist for treatment of large plumes. Degradation and extraction methods for radioactive and hazardous contaminants from soil and water.

PROGRAM MISSION - ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM (cont'd)

- Characterization of heterogeneous wastes is needed to optimize decontamination and decommissioning recycling alternatives. Surface stabilization and fixation concepts are needed to reduce the ultimate waste volume and to enhance recycling. Selective and non-selective removal of contaminants from surfaces or bulk materials. Recycling of valuable commodities into general commerce.

- Non-destructive and in situ characterization methods to characterize the hazard of landfills. Innovative immobilization and transformation concepts that significantly reduce the cost of remediation. Ex situ separation and treatment concepts to rapidly and safely destroy or immobilize landfill constituents.

- Emission-free destruction of organic mixed wastes. Off-gas treatment that eliminates emissions in the environment exceeding Environmental Protection Agency requirements. Non-thermal treatment concepts for mixed waste.

- Plutonium behavior in mixed matrices. Long-term monitoring concepts for plutonium.

- New concepts for waste stabilization of spent nuclear fuel. Long-term monitoring and performance assessment of nuclear fuel. Physics and chemistry for radionuclides in mixed matrices.

- Specialized nuclear waste forms. Performance assessment concepts for nuclear waste disposal.

Also included in the EM Science Program Decision Unit is the Risk Policy Program. The goal of this program is to conduct and integrate risk management and analysis activities into the EM decision making process. The objective of this program is to provide the information necessary to allow credible, risk-based decision-making for the EM program.

PERFORMANCE MEASURES

This program is expected to result in significant cost savings over its lifetime, contribute to a more rational and defensible DOE cleanup program, and enhance technology exports from the knowledge gained. As the program continues to be developed, detailed performance measures will be established to measure those results.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands, narrative in whole dollars)

ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Basic Science Program	$ 0	$ 0	$+50,000	$ 50,000	$ 38,137
Risk Policy Program	23,650	0	+13,875	13,875	13,999
Total, EM Science Program	$ 23,650	$ 0	$+63,875	$ 63,875	$ 52,136

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ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM

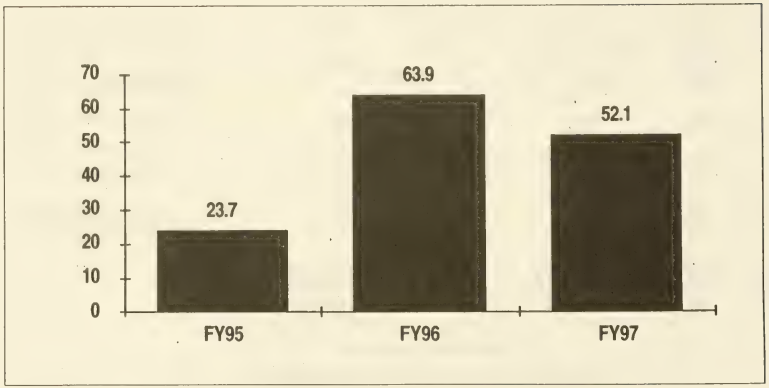
PROGRAM FUNDING BY SITE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Albuquerque Operations Office	$ 0	$ 0	$ +150	$ 150	$ 0
Sandia National Laboratory	600	0	+200	200	0
TOTAL, Albuquerque	600	0	+350	350	0
Nevada Operations Office	200	0	+200	200	0
Pacific Northwest Laboratory	200	0	+200	200	0
Oak Ridge Operations Office	0	0	+550	550	0
Headquarters	22,650	0	+62,575	62,575 a/	52,136 a/
TOTAL, EM Science Program	$ 23,650	$ 0	$ +63,875	$ 63,875	$ 52,136

a/ Final site distribution of Basic Science Program funding in FY 1996 ($50,000,000) and FY 1997 ($38,137,000) will be determined once fundamental research proposals are received, reviewed, and final selections are made.

Environmental Management Science Program

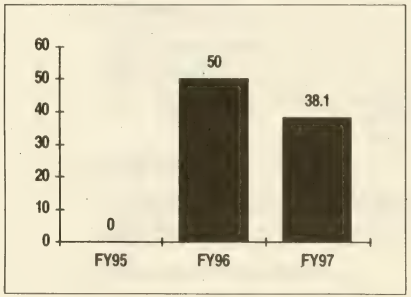
Budget Trends
(Dollars in Millions)



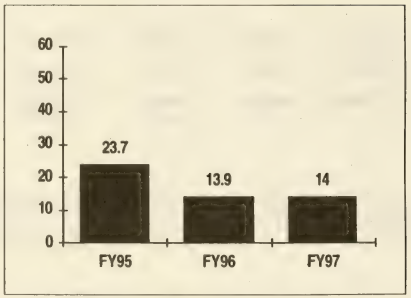
Technology Development

Budget Trends - Environmental Management Science Program
(Dollars in Millions)

Basic Science Program



Risk Policy Program



ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM

BASIC SCIENCE PROGRAM

I. Mission Supporting Goals and Objectives

Planning for the Basic Science Program began in 1995. Utilizing a $50,000,000 Congressional add to the FY 1996 appropriation, a competitive process has been initiated and offered to the DOE national laboratories, academic and industrial organizations. Peer review panels will be convened to review and select proposals and selected fundamental research projects will be initiated. The FY 1997 funding will provide for formal review of research projects begun in FY 1996 and for another competitive process.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Basic Science Program	$ 0	$50,000	$38,137	$-11,863	-24%
TOTAL, Basic Science Program	$ 0	$50,000	$38,137	$-11,863	-24%

III. Performance Summary

FY 1995 Accomplishments:

- Conducted planning activities.

III. Performance Summary - Basic Science Program (cont'd)

FY 1996 Accomplishments (To Date and Planned):

- Environmental Management (EM), Department of Energy (DOE), Office of Energy Research and Laboratory team recommends science areas.
- Develop program plan in collaboration with the DOE Office of Energy Research.
- Establish peer review procedure for selection of basic science areas.
- Establish EM Science Advisory Board as a standing committee under the existing EM Advisory Board.
- Validate Science Advisory Board program plan and procedures.
- Issue call for proposals for work in each primary science area.
- Convene peer review panels to review and select proposals to be funded.
- Work with stakeholders to obtain input for developing site-specific scientific research agendas.

FY 1997 Planned Accomplishments:

• Reaffirm scope and direction of basic research needs for the program	$ 300
• Issue call for proposals for work in each primary science area	37
• Commence peer review panels to review and select proposals to be funded	300
• Begin mission-oriented fundamental research projects selected in FY 1996 and FY 1997	37,000
• Conduct formal review of first year's activities	500
TOTAL, BASIC SCIENCE PROGRAM	$38,137

Explanation of Funding Changes FY 1996 to FY 1997

- Fewer fundamental R&D proposals will be solicited from the DOE national laboratories, academia and the private sector.

Major Issues

- None

RISK POLICY PROGRAM

I. Mission Supporting Goals and Objectives

The goal of the Risk Policy Program is to provide credible risk based decision-making for the Environmental Management Program. This will be accomplished by developing risk policy and risk assessment and management practices, with meaningful stakeholder involvement, which provide for protection of human health and the environment. It includes developing the policy, guidance, and tools for credible processes for risk management.

Environmental management supported a risk framework in 1995 by awarding a series of risk initiative grants and cooperative agreements under a Notice of Program Interest published in the Federal Register. These cooperative agreements are with independent institutions to work together to help the Department further define and implement approaches to credible risk assessment, management, and communication practices. These include: the development of comprehensive, innovative methods to assess and communicate human health and environmental risk; research programs to develop a greater understanding of the human health and environmental effects associated with remediation activities at specific sites; and the development of information for human health and ecological risk analysis. These grants were long-term efforts with the majority of the work being conducted in FY 1996, FY 1997, and beyond.

In June of 1995, Environmental Management issued a congressionally mandated risk report. This report, "Risks and the Risk Debate: Searching for Common Ground, The First Step," provided an analysis of current and proposed risk management activities initiated to reduce risk and fulfill compliance requirements.

This report provided the first link between budget, compliance requirements and risk reduction activities. The Department of Energy field program managers with expertise about activities categorized the environmental management work. This allowed the Department to capture the spectrum of risks associated with environmental management activities and linked the risks in a qualitative fashion to compliance requirement and budget.

The Environmental Management Advisory Board endorsed the process used to collect the information and recommended that it be improved and directly tied to the budget process. This is a major initiative of the Environmental Management program in FY 1996 for the FY 1998 budget.

II. Funding Schedule - Risk Policy Program (cont'd)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Risk Policy Program	$23,650	$13,875	$13,999	$ + 124	0%
TOTAL, Risk Policy Program	$23,650	$13,875	$13,999	$ + 124	0%

III. Performance Summary

FY 1995 Accomplishments:

The primary areas that the Risk Policy Program concentrated on in FY 1995 were:

- Promoted mechanisms for integrating risk information into the process for establishing priorities among competing EM requirements -- Facilitating the use of risk in the budget process, one of the recommendations from the Environmental Management Advisory Board (EMAB).
- Support risk initiative Grants and Cooperative Agreements with independent institutions who will work together to help the Department further define and implement approaches to credible risk assessment, management, and communication.
- Develop policy, requirements, and guidance for implementing credible and dependable risk assessment and risk management practices.
- Ensure that risk-related information is accessible and provide in a useful form to the public.
- Issued Principles for Using Risk Analysis, a first cut at defining risk analysis, its purposes, and the principles to be followed if it is to be done well and credibly.
- Awarded Grants and Cooperative Agreements to independent institutions who will work to further define and implement credible approaches for risk assessment, management, and communication.
- Developed an approach to capturing the spectrum of risks associated with diverse EM activities, which qualitatively linked risks to compliance requirements and the budget.
- Issued the Draft Risk Report to Congress, a first step toward developing a consistent approach to evaluating the risks to the public, workers, and the environment posed by conditions at DOE's sites and facilities.

III. Performance Summary - Risk Policy Program (cont'd)

FY 1996 Accomplishments (To Date and Planned):

- Support Risk Initiative Grants and Cooperative Agreements, awarded in 1995 under a Notice of Program Interest published in the Federal Register. These agreements are with independent institutions who work together to help the Department further define and implement approaches to credible risk assessment, management, and communication.
- Provide technical support to develop EM-wide guidance tools for implementing a credible framework for EMs risk analysis, risk management, risk communications, and priority setting initiatives.
- Provide technical peer review and comments on scientific and technical risk materials, both internally and externally, through nationally recognized scientific and technical organization.
- Integrate risk information into the process for establishing priorities among competing EM requirements, facilitating the use of risk in the FY 1998 budget, a major EMAB recommendation.
- Work with peer review groups to ensure that risk information collected for the FY 1998 budget process is consistent and credible, and to improve the quality of the FY 1999 process.
- Provide expanded access for internal and external stakeholder to useful risk-related information.
- Integrate the process of collecting risk information into data collection tools and guidance for the FY, 1999 budget process.

FY 1997 Planned Accomplishments

• Implement credible approaches to risk assessment, management, and communication as they are developed by Risk Cooperative Agreement partners. Support Risk Initiative Grants and Cooperative Agreements, awarded in 1995. This includes the development of comprehensive, innovative methods to assess and communicate ecological and human health risks; research programs to develop a greater understanding of the ecological and human health effects associated with remediation activities at specific sites; and the development of models related to ecological risk analysis	$10,000
• Work with peer review groups to ensure that risk information collected for the FY 1999 budget process is consistent and credible, and to improve the quality of the FY 2000 process. Address issues identified in the congressionally-mandated report on the health and safety risks to workers and the public associated with EM sites and activities. This includes continued support and further development of tools for qualitatively evaluating all EM sites and activities by headquarters and the field	2,500
• Continue to develop policy, requirements, and guidance for implementing credible and dependable risk assessment and risk management practices. Provide technical support to develop EM-wide guidance tools for implementing a credible framework for EM's risk analysis, risk management, risk communication, and priority setting initiatives, as outlined in the Department's "Principles for Using Risk Analysis" and in the National Academy of Sciences Reports "Building Consensus" and "Improving the Environment"	1,499
TOTAL, FY 1997 RISK POLICY PROGRAM	$13,999

III. Performance Summary - Risk Policy Program (cont'd)

Explanation of Funding Changes FY 1996 to FY 1997

- None

Major Changes

- None

ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM
(obligations in thousands)

OBJECT CLASS SUMMARY

Direct Obligation:	FY 1995 Comp.	FY 1996 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Personnel Compensation:					
11.1 Full-time permanent	0	0	0	0	0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	0	0	0	0	0
11.9 Total Personnel Compensation	0	0	0	0	0
12.1 Civilian personnel benefits	0	0	0	0	0
13.0 Benefits for former personnel	0	0	0	0	0
21.0 Travel and transportation of persons	0	0	0	0	0
22.0 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	0	0	0	0	0
23.2 Rental payments to others	0	0	0	0	0
23.3 Communications, utilities, and misc charges		0	0	0	0
24.0 Printing and reproduction	0	0	0	0	0
25.4 Operation of GOCOs	23,650	0	13,875	0	13,999
25.5 Research and development	0	0	50,000	0	38,137
26.0 Supplies and materials	0	0	0	0	0
31.0 Equipment	0	0	0	0	0
32.0 Land and structures	0	0	0	0	0
33.0 Investments and loans	0	0	0	0	0
42.0 Insurance claims and indemnities	0	0	0	0	0
Subtotal, Direct Obligations	23,650	0	63,875	0	52,136
99.0 Reimbursable Obligations	0	0	0	0	0
99.9 Total Obligations	$ 23,650	$ 0	$ 63,875	$ 0	$ 52,136
Recovery of prior year obligations	0	0	0	0	0
Unobligated balance available, start of year	0	0	0	0	0
Unobligated balance available, end of year	0	0	0	0	0
Budget Authority	$ 23,650	$ 0	$ 63,875	$ 0	$ 52,136

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PRIVATIZATION

I. Mission Supporting Goals and Objectives

The Office of Environmental Management (EM) has experimented with a number of forms of privatization and several have been highly successful in reducing costs. The successful projects (listed below) involve the purchase of waste management services at a fixed price by EM. They rely on a contractor to design, permit, finance, construct, and operate the necessary facility. The contractor is then paid for providing waste management services meeting the Department's performance specifications. Environmental Management will obligate the appropriated funds as privatized facilities are built. Budget outlays will not occur until the completed facilities are operational and providing the service required. Typically, outlays will occur three to four years after a contract award. This budget describes the privatization effort for treatment of waste in tanks at Richland, Washington.

Other privatization projects are planned throughout the EM Program. Such projects may be added to this budget account in future years so that they may be tracked accordingly. An additional $182,000,000 for EM Privatization Projects is being requested in the President's FY 1997 Budget Submission as part of the General Provisions. This request is part of an ongoing effort to improve planning and budgeting for acquisition of fixed assets and similar procurements.

PRIVATIZATION - HANFORD TANK WASTE (cont'd)

I. Mission Supporting Goals and Objectives - (cont'd)

Examples of Environmental Management Privatization Projects

SITE	PROJECT NAME	ESTIMATED COST	PRIVATIZATION COST	SAVINGS
Hanford	Laundry Facility	$100M	$40M	$ 60M a/
Hanford	Low Level Mixed Waste Thermal Treatment Fac.	$610M	$40M	$570M
Idaho	Alpha Mixed Waste Treatment Fac.	$470M	$184M	$286M
Idaho	Laundry Facility	$ 6M	$ 1M	$ 5M a/
Idaho	Pit 9 Remediation	$313M b/	$179M c/	$134M
Savannah River	M-Area Mixed Waste Tank Remediation	$ 46M	$ 18M	$ 28M

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a/ Estimated savings based on assumed a 10 year operation.
b/ DOE Idaho independent cost estimate, including contingency.
c/ Private cost estimate assumes follow-on work.

I. Mission Supporting Goals and Objectives - (cont'd)

Hanford Tank Waste Treatment:

As part of the Reinventing Government and Contract Reform Initiatives, the Department of Energy (DOE) staff have evaluated the feasibility of privatizing all or part of the Hanford Tank Waste Remediation System (TWRS). The effort is also a follow-up to the DOE evaluation of a privatization concept offered by the Environmental Corporation of America for using its own funding to build a plant at Hanford to vitrify the high-level fraction of the tank waste. Privatization in the context used for the evaluation was understood to mean payment for services performed in delivery of waste treated to performance specifications.

As part of the overall evaluation, substantial information was collected or synthesized for use in determining feasibility. It was determined that a two Phase approach to TWRS privatization was desirable, both from an economic standpoint and from the point of view of private vendors. The first of the two phases would be a commercial demonstration phase where private vendors would treat sufficient waste to demonstrate to both DOE and to the financial community that they, the private vendors, were capable of treating the remainder of the tank waste in a larger, second phase effort.

Phase 1 would last from 1996 through 2007 or longer with options if the facilities are cost effective. Two vendors would be selected to treat between 6 to 13 percent of the tank waste. The scope of Phase 1 would involve (for each successful vendor):

- Sequential retrieval/transfer by DOE of waste (in batches, not mixed) from selected tanks to two existing tanks designated as feed tanks (one assigned to each vendor).
- Vendor retrieval/transfer of waste from its feed tank to vendor's facility.
- Vendor pretreatment to separate tank waste into low- and high-activity waste fractions and immobilize the low- and high-activity waste fractions; or as an option, provide integrated treatment of tank waste resulting in one high-activity waste stream for immobilization.
- Vendor deactivation of all vendor-supplied facilities and equipment.
- Vendor would own facility on leased DOE land in the 200 area of the Hanford Site.

Phase I would be divided into 2 stages: Design, Permitting and Construction/Operation -- three contractors would be awarded fixed price contracts from competitive proposals based on technical proposals and target prices bid for treated waste. Following sufficient design activities resulting in acceptable permit applications, one or more vendors would be terminated and paid a pre-negotiated price for their efforts. The remaining vendor(s) would be paid a pre-determined fixed payment based on a risk sharing agreement with DOE and the vendor(s) would continue with permitting, construction and operations. The Department would expect the vendor(s) to establish a pre-determined level of equity in the plant to provide assurance to both DOE and the financial community at the time of the Department's fixed payment. (DOE will not approve or buy the vendor technology or design)

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PRIVATIZATION - HANFORD TANK WASTE - (cont'd)

I. Mission Supporting Goals and Objectives - (cont'd)

- o In the Request for Proposals, DOE has provided bounding information on waste physical properties, chemistry, radionuclide content and volume, nuclear safety requirements and oversight process, treated waste form performance specifications, and a list of additional information or services DOE will furnish to successful vendors to include user charges that may be involved such as for utilities or other services.
- o Contractors would privately finance the design, permitting, and construction of the facilities; operate the facility; and ultimately be responsible for deactivation in accordance with applicable regulations.
- o A capital payment will be made to each contractor when they satisfactorily complete the design/permit submission process based on shared risk for the overall construction. The risk sharing formula requires two selected contractors to hold at least 20 percent of the fixed capital investment in their respective plants as vendor supplied capital. The Department will compensate the terminated contractor at pre-agreed to level.
- o The Department would hold contractors responsible for technical/cost performance and pay only for treated waste product meeting contract performance specifications (except for the fixed payment following the initial design period), once their plant begins operations.
- o Vendors would be subject to applicable TPA enforceable deadlines (existing or renegotiated) as incorporated in the contract.

II. Funding Schedule:

	FY 1995 Comparable	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustment	FY 1996 Comparable Appropriation	FY 1997 Budget Request
Termination Liability	$ 0	$ 0	$ 0	$ 0	$185,000
TOTAL	$ 0	$ 0	$ 0	$ 0	$185,000
Richland Operations Office	$ 0	$ 0	$ 0	$ 0	$185,000
TOTAL	$ 0	$ 0	$ 0	$ 0	$185,000

* Funds have been set aside from Waste Management's Appropriation in both FY 1995 and FY 1996 to be devoted to this new budget account. The Total Project Cost for Phase I is considered procurement sensitive due to the ongoing procurement.

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PRIVATIZATION - HANFORD TANK WASTE (cont'd)

II. Funding Schedule - (Cont'd)

Note that privatization projects are funded using expense funds only and that BA requested as a termination backstop would require reprogramming to the appropriate budget category in the event of termination of the contract. Outlays for this project are expected to begin not earlier than 2002.

III. Performance Summary

FY 1995 Accomplishments

- o Secretary accepts recommendations for feasibility for Privatization and approves implementation.

FY 1996 Accomplishments (To Date and Planned)

- o Draft Request for Proposals issued November 1995. Final request issued February 1996.
- o Contract(s) are planned to be awarded by August 1996.

FY 1997 Planned Accomplishments

- o Successful vendors conduct design and permitting activities.

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SITE OPERATIONS - DEFENSE

PROGRAM MISSION

The Office of Site Operations' mission is to serve as an advocate and provide policy direction for landlord planning and budgeting, including reducing site infrastructure costs and managing workforce restructuring for Environmental Management (EM), and for all activities at Mound and Pinellas. The Office will serve as the focal point for the Department of Energy (DOE) wide programs for transportation management, emergency management, characterization management, pollution prevention, and waste minimization. The Office will also operate as the Headquarters champion in the EM Program for the Operations Offices and field sites by providing leadership for crosscutting issues and topics raised by the field or EM Headquarters review, concurrence, resolution, or other decisions are acted upon quickly, corporately, and equitable.

Through its landlord program and other activities, the Office of Site Operations will gather data on the total site support costs. On average, these "balance of site costs" represent approximately 50 percent of a site's budget. Therefore, the Office will analyze these site support costs and develop and implement benchmarks for use in reducing these "balance of site costs."

The realignment of the Mound and Pinellas Offices into Site Operations signifies that efficient site closure will require an integrated EM-wide effort. The integrated, systematic approach developed here will serve as a model for the eventual shutdown and ultimate disposal of the remaining former Defense Programs (DP) sites and other DOE sites.

By focusing national attention to several programs that have impact across the DOE complex, the Office of Site Operations will be responsive to the General Accounting Office (GAO) and others who have pushed for national focus for EM programs. Characterization Management, Transportation, and Pollution Prevention are programs having nation-wide goals and benefits that will be enhanced by being managed by a program office created to respond to issues and needs that have impact across the DOE complex. The Office of Site Operations will provide the national focus and was created in FY 1996 by combining national crosscutting program elements from other EM organizations. The consolidation of these crosscutting and national programs will allow the Office, using its relatively small budget, to influence much larger EM-wide and DOE-wide programs. Funding for FY 1996 remains in the original EM organizations, however, activities and accomplishments for FY 1995 and 1996 are shown for comparability purposes. Funding for the new organization is requested for the first time in FY 1997.

SITE OPERATIONS - DEFENSE - PROGRAM MISSION

The GOALS of the Office of Site Operations Program are to:

- o Optimize EM landlord programs to provide safe, reliable, and efficient infrastructure and site services, while reducing support costs and maintaining regulatory compliance.
- o Integrate all EM program activities at Mound and Pinellas to manage and expedite closeout and disposition, creating a model for other DOE sites. Pinellas will be closed out by September 1997 and vacated by mid-1998.
- o Assure, on behalf of the Department, the safe, secure, economical, and regulatory-compliant packaging and transportation of DOE materials, including hazardous and radioactive materials and waste, and spent nuclear fuel.
- o Provide policy, training, and planning and technical assistance to assure safe and efficient Federal, tribal, state, and local response to emergencies involving DOE unclassified radioactive material.
- o Advance EM environmental characterization activities, including analytical services, to a superior level of efficiency, productivity, accountability, and rigor.
- o Assure the Department is highly successful in achieving ambitious goals for pollution prevention and waste minimization, including reduction in generation of hazardous, radioactive, mixed, and sanitary wastes, and promotion of significant cost savings and efficiency improvements through recycling.
- o Continuously improve EM program effectiveness by assuring consistent Headquarters direction to the field across EM programs, and to assist Headquarters and the field in identifying, negotiating, and resolving crosscutting EM issues.

The OBJECTIVES related to these goals are to:

- o Identify and establish benchmarks for EM-wide activities.
- o Develop integrated EM-wide positions on proposed legislation and regulations, and assist the Administration in promoting responsible laws.
- o Act as the EM National Environmental Policy Act (NEPA) Compliance Officer.
- o Improve inter-agency communication to clarify and streamline the regulatory process.
- o Issue guidance for restructured EM approval of cleanup and compliance agreements.
- o Provide technical assistance to enhance the effectiveness of the Department's transportation and packaging operations.
- o Provide clear and consistent transportation operations and traffic management policy, direction, and guidance, aimed at achieving excellence in operations by ensuring consistent interpretation of external regulations, Departmental policies, and guidance.
- o Provide a single point for communication between Headquarters and each site on transportation operations and traffic management issues that crosscut DOE organizations (excluding weapons and weapons components).
- o Develop a program plan to achieve the Department's pollution prevention goals and manage the field's site-wide pollution prevention programs to more effectively achieve these goals.

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SITE OPERATIONS - DEFENSE - PROGRAM MISSION

PERFORMANCE MEASURES:

- o Develop "Balance of Site Benchmark."
- o Number (seven) of pollution prevention projects implemented and costs saved or avoided by these projects (number of projects; and costs savings or avoidances).
- o The volume (for radioactive waste) or weight of (for non-radioactive waste) generated and reduced for mixed waste, radioactive waste (broken out by type: high-level, low-level, and transuranic), hazardous waste, and sanitary wastes (cubic meters, m^3,; kilograms, kg)
- o The weight of toxic chemicals released and transferred off-site (kilograms, kg).
- o Complete DOE exit from the Pinellas site by the end of FY 1997, except for residual administrative activities and long-term groundwater pump-and-treat operations.
- o Land and buildings releasable for disposition (percentage of total acres) (Mound).
- o Groundwater pump and treat (micrograms per liter) (Mound).
- o Contaminated excess nuclear materials, and nuclear and hazardous waste, removed (thousands of cubic feet) (Mound)
- o Potential Release (contamination) Sites resolved (number of sites) (Mound).

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SITE OPERATIONS - DEFENSE

PROGRAM FUNDING PROFILE

Sub-Program	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments 1/	FY 1996 Comparable Appropriations	FY 1997 Budget Request
Site Integration	$ 163,180	$ 0	$ 139,076	$ 139,076	$ 97,921
Mound & Pinellas Project Office	136,698	0	150,631	150,631	145,307
Program Integration	12,011	0	9,597	9,597	9,704
Environmental & Regulatory Analysis	1,489	0	415	415	772
Transportation, Emergency Management, and Characterization Management	37,447	0	13,623	13,623	19,496
Pollution Prevention	29,257	0	20,004	20,004	23,854
SUBTOTAL, Operations and Maintenance	$ 380,082	$ 0	$ 333,346	$ 333,346	$ 297,054
Construction (Site Integration Funds)	74,866	0	49,827	49,827	32,415
TOTAL, Site Operations	$ 454,948	$ 0	$ 383,173	$ 383,173	$329,469

Public Law Authorization:
Public Law 95-91, DOE Organization Act (1977)
Public Law 104-106, National Defense Authorization Act, For Fiscal Year 1996
Public Law 104-96, The Energy and Water Development Appropriation Act, For Fiscal Year 1996

1/ Transferred from Compliance and Program Coordination, Waste Management, Environmental Restoration and Nuclear Material and Facility Stabilization.

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SITE OPERATIONS - DEFENSE

PROGRAM FUNDING BY SITE

Field Offices/Sites	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
ALBUQUERQUE OPERATIONS OFFICE					
Albuquerque Operations Office (NM)	$ 3,471	$ 0	$ 2,000	$ 2,000	$ 4,164
Grand Junction Project Office (CO)	741	0	0	0	0
Los Alamos National Laboratory (NM)	1,713	0	0	0	0
Pinellas (FL)	43,217	0	52,490	52,490	59,065
Sandia National Laboratory (NM)	8,481	0	5,500	5,500	5,045
Subtotal, ALBUQUERQUE	$ 57,623	$ 0	$ 59,990	$ 59,990	$ 68,274
CHICAGO OPERATIONS OFFICE					
Chicago Operations Office (IL)	$ 3,033	$ 0	$ 100	$ 100	$ 1,070
Subtotal, CHICAGO	$ 3,033	$ 0	$ 100	$ 100	$ 1,070
HEADQUARTERS					
Headquarters (MD/DC)	$ 35,144	$ 0	$ 21,938	$ 21,938	$ 25,115
Subtotal, HEADQUARTERS	$ 35,144	$ 0	$ 21,938	$ 21,938	$ 25,115
IDAHO OPERATIONS OFFICE					
Idaho National Engineering Laboratory (ID)	$ 44,888	$ 0	$ 38,364	$ 38,364	$ 33,524
Idaho Operations Office (ID)	0	0	30	30	30
Subtotal, IDAHO	$ 44,888	$ 0	$ 38,394	$ 38,394	$ 33,554
NEVADA OPERATIONS OFFICE					
Nevada Operations Office (NV)	$ 2,418	$ 0	$ 1,085	$ 1,085	$ 2,650
Nevada Test Site (NV)	810	0	672	672	200
Subtotal, NEVADA	$ 3,228	$ 0	$ 1,757	$ 1,757	$ 2,850

SITE OPERATIONS - DEFENSE - PROGRAM FUNDING BY SITE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
OAKLAND OPERATIONS OFFICE					
Lawrence Livermore National Laboratory (CA)	$ 1,528	$ 0	$ 1,060	$ 1,060	$ 1,055
Subtotal, OAKLAND	$ 1,528	$ 0	$ 1,060	$ 1,060	$ 1,055
OAK RIDGE OPERATIONS OFFICE					
Oak Ridge National Laboratory (TN)	$ 6,790	$ 0	$ 1,925	$ 1,925	$ 2,036
Oak Ridge Operations Office (TN)	825	0	0	0	200
Oak Ridge Reservations (TN)	450	0	3,665	3,665	3,053
Subtotal, OAK RIDGE	$ 8,065	$ 0	$ 5,590	$ 5,590	$ 5,289
OHIO FIELD OFFICE					
Fernald (OH)	$ 120	$ 0	$ 0	$ 0	$ 0
Mound (OH)	93,481	0	98,141	98,141	86,242
Ohio Field Office (OH)	123	0	0	0	100
Subtotal, OHIO	$ 93,724	$ 0	$ 98,141	$ 98,141	$ 86,342
PITTSBURGH ENERGY TECHNOLOGY CENTER					
Pittsburgh Energy Tech. Center (PA)	$ 160	$ 0	$ 75	$ 75	$ 0
Subtotal, PITTSBURGH	$ 160	$ 0	$ 75	$ 75	$ 0
RICHLAND OPERATIONS OFFICE					
Hanford (RL)	$ 42,170	$ 0	$ 39,459	$ 39,459	$ 30,102
Pacific Northwest (RL)	2,662	0	2,574	2,574	0
Richland Operations Office (RL)	25,110	0	25,494	25,494	19,966
Subtotal, RICHLAND	$ 69,942	$ 0	$ 67,527	$ 67,527	$ 50,068
ROCKY FLATS OFFICE					
Rocky Flats Operations Office (RF)	$ 1,886	$ 0	$ 268	$ 268	$ 1,543
Subtotal, ROCKY FLATS	$ 1,886	$ 0	$ 268	$ 268	$ 1,543

SITE OPERATIONS - DEFENSE - PROGRAM FUNDING BY SITE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	FY 1996 Real & Comp Adjustments	FY 1996 Comparable Appropriation	FY 1997 Budget Request
SAVANNAH RIVER OPERATIONS OFFICE					
Savannah River (SR)	$ 135,727	$ 0	$ 88,333	$ 88,333	$ 54,309
Subtotal, SAVANNAH RIVER	$ 135,727	$ 0	$ 88,333	$ 88,333	$ 54,309
TOTAL, Site Operations	$ 454,948	$ 0	$383,173	$383,173	$329,469

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SITE INTEGRATION - DEFENSE

(Tabular dollars in thousands, narrative in whole dollars)

I. Mission Supporting Goals and Objectives

The Office of Site Integration's budget focuses on activities related to the management of general purpose infrastructure (i.e., "balance of site") and site-wide support services that are essential for owning, operating, and accomplishing essential missions at DOE Environmental Management sites.

The Defense Environmental Restoration and Waste Management appropriation funds the infrastructure and site support services collectively as landlord program activities at the following sites: Savannah River, Idaho, and Richland. Specific examples of infrastructure and support systems include: grounds, roads, general purpose buildings, utilities, communications, computers and information, fleet management, maintenance and fabrication, emergency services, land management, analytical laboratories, and environmental test facilities.

The landlord program provides infrastructure and site support through line-item and expense-funded projects, state environmental and monitoring grants, downwinder litigation, payments-in-lieu-of-taxes, document declassification, radiation test documentation, and health information.

The goal of the Site Integration landlord program is to ensure that the general purpose infrastructure and site services are always ready to safely, reliably, and efficiently support environmental management activities in a cost effective manner.

The end-state goal for the Office of Site Integration program area is the implementation of the minimum set of landlord support functions. Surplus facilities or equipment will be either recycled for interim or indefinite alternative uses by DOE, transferred for reuse to another government agency, excessed to the General Services Administration (GSA), transferred to Environmental Restoration for remediation, or demolished. Once established, the end-state will minimize DOE overhead costs and, in some cases, avoid unnecessary capital costs.

In FY 1997 the Site Integration budget reflects a scope of work which is, in part, funded by uncosted balances from prior years.

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II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Landlord	$ 238,046	$ 188,903	$ 130,336	-58,567	-31%
TOTAL, Site Integration	$ 238,046	$ 188,903	$ 130,336	-58,567	-31%

III. Performance Summary

FY 1995 Accomplishments:

- o Provided site-wide landlord services for 9 major facilities associated with the Idaho National Engineering Laboratory (INEL). (ID)
- o Acquired capital equipment that is required to maintain operations for 14 site-wide service programs supporting the INEL. (ID)
- o Completed the construction of the INEL Transportation Complex (92-D-183), INEL Sewer System Upgrade at the Central Facilities Area (CFA) (92-D-182), and initiated the construction of the INEL Electrical Upgrade (93-D-172), the Emergency Response Facility (94-D-401), and the Medical Facility at the CFA (94-D-415) to provide cost effective, life-safety and health improvements. (ID)
- o Completed General Plant Project (GPP) construction items to maintain a safe and cost efficient infrastructure, such as the Idaho Research Center (IRC) Chemical Storage Facility, the IRC Fume Hood Upgrade, the CFA Deep Well Upgrade, the CFA-623 Paint Process Room Addition, and the Test Reactor Area (TRA) Gas Bottle Storage Area. (ID)
- o Demolished 10 non-process contaminated surplus facilities (53,500 square feet). (RL)
- o Completed the corrective action plan associated with recent steam system accident. (RL)
- o Inspected and analyzed 2 million square feet of facilities and prioritized the remaining 4,460,000 square feet of facilities at the Hanford Site. (RL)
- o Provided grant funding to the States of Washington and Oregon for environmental management issues, emergency planning/preparedness, and waste transportation. (RL)
- o Operated the Hanford Filter Test Facility to test High Efficiency Particulate Air Filters. (RL)
- o Replaced 211,916 square feet of roof (Buildings 282EA, 318, 384, 190X, and two other smaller buildings). (RL)
- o Procured penetrometer necessary to support the Hanford Filter Test Facility. (RL)
- o Completed Phase I of the electrical distribution system upgrade (current system presented serious safety liabilities). (RL)
- o Established centralized management for fileservers and desktop computers. (RL)
- o Completed Automated Transportation Management System, which was later accepted as standard by 22 DOE sites and GSA. (RL)
- o Accepted End Point Criteria Software in sufficient time to support Plutonium-Uranium Extraction (PUREX) documentation as initial application. (RL)

III. Performance Summary (con't)

FY 1995 Accomplishments: (con't)

- o Closed inefficient and obsolete 284 west powerhouse. (RL)
- o Eliminated unnecessary bus services estimated to save $3,000,000 in FY 1996. (RL)
- o Reduced electrical energy costs from $5.6 to $5.3 cents per kilowatt hour (approximately $9,000,000 savings per year). (RL)
- o Reduced light vehicles by 15 percent. (RL)
- o Vacated facility to reduce occupancy costs by $9,000,000/year. (RL)
- o Reduced crane and rigging rates by 35 percent and 56 percent respectively. (RL)
- o Reduced Hanford inventory by 15,897 items (25.3 percent) with a cost savings of more than $7,800,000. (RL)
- o Approved definitive designs and awarded construction contracts for the Hazardous Materials Management and Emergency Response (HAMMER) Training Center at Hanford. (RL)
- o Completed 92-D-153, Engineering Support Facility. (SR)
- o Contracted out Contaminated/Non-Contaminated Laundry Services estimated to save $215,000 a year. (SR)
- o Contracted out A-E Engineering/Design Services to a "Corral" of four companies estimated to save $8,000,000 a year. (SR)
- o Manage forest and land resources on a 300 square mile site. (SR)
- o Conducted ecological studies at the Savannah River Ecology Laboratory (SREL). (SR)
- o Provided program support for engineering and project activities, training, budget, financial planning, and payment in lieu of taxes, as well as Historically Black Colleges and Universities, grants and general administrative services. (SR)
- o Acquired capital equipment that is required to maintain safe and efficient operations for site-wide programs such as Information Resources Management, Engineering and Construction Services, material management, administrative services, utilities, central services, and transportation. (SR)
- o Completed GPP construction items to maintain a safe and cost efficient infrastructure. (SR)
- o Continued activities for on-going construction projects and complete one construction project, which will allow the site to comply with state drinking water standards, the Clean Air Act, and to support the various program missions: the HP Instrument Calibration Facility (92-D-143); completed one construction project: 92-D-153, Engineering Support Facility. (SR)
- o Initiated construction of two projects at Savannah River to replace deteriorating bridges and to replace the radio system to comply with Federal regulations: Site Road Infrastructure and Radio Trunking System. (SR)

FY 1996 Accomplishments (To Date and Planned):

- o Provide site-wide landlord services for 9 major facilities associated with INEL. (ID)
- o Acquire capital equipment that is required to maintain safe and efficient operations for 14 site-wide service programs supporting INEL. (ID)
- o Complete the construction of the INEL Electrical Upgrade project (93-D-172), the TRA Sewer Treatment Plant as part of the Sewer System Upgrade (92-D-182), the Emergency Response Facility at CFA (94-D-401), and the Medical Facility at CFA (94-D-415), all of which support a cost effective, life-safety and health compliant infrastructure. (ID)
- o Complete GPP construction items to maintain a safe and cost efficient infrastructure, such as the CFA 690 Roof Replacement and the East Butte Radio Communications Upgrade. (ID)
- o Complete construction of the replacement facility for the 300-Area process sewer. (94-D-412) (RL)
- o Complete Building 324 renovation to meet safety requirements. (RL)

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III. Performance Summary (con't)

FY 1996 Accomplishments (To Date and Planned): (con't)

- o Transition mainframe computer and data center to smaller, unmanned facility. (RL)
- o Contract out mail service and reduce other multi-media costs to save $2,600,000. (RL)
- o Implement metering/library system for all common software. (RL)
- o Develop and implement additional computer data systems to support deactivation end points. (RL)
- o Reengineer support services for vehicle maintenance, railroad, transportation, sanitary and disposal of non-radioactive hazardous wastes generated from daily site-supported services. (RL)
- o Shutdown balance of Hanford Central steam plants and replace with energy saving performance contract. (RL)
- o Complete Environmental Management mission in 300-Area and excess 72 acre property to GSA. (RL)
- o Lease 400 area to Port of Benton. (RL)
- o Continue reduction of an additional 300,000 square feet of Government owned space. (RL)
- o Complete Phase I construction of the HAMMER Training Center at Hanford and conduct training. (RL)
- o Continue depository of the Fitzner/Eberhardt and Lands Ecology Reserve. (RL)
- o Privatize D-Area Powerhouse estimated to save $15,000,000 a year. (SR)
- o Manage forest and land resources on a 300 square mile site. (SR)
- o Conduct ecological studies at the Savannah River Ecology Laboratory (SREL). (SR)
- o Provide program support for engineering and project activities, training, budget, financial planning, and payment in lieu of taxes, as well as Historically Black Colleges and Universities, grants and general administrative services. (SR)
- o Acquire capital equipment that is required to maintain safe and efficient operations for site-wide programs such as Information Resources Management, Engineering and Construction Services, material management, administrative services, utilities, central services, and transportation. (SR)
- o Complete GPP construction items to maintain a safe and cost efficient infrastructure. (SR)
- o Continue activities for on-going construction projects and complete two construction projects: 92-D-151, Operation Support Facilities and 93-D-152, Environmental Modification to Production Facilities. (SR)
- o Initiate construction of one project at Savannah River to replace chiller to support missions and comply with Clean Air Act: 96-D-471, CFC/HVAC Retrofit. (SR)

FY 1997 Planned Accomplishments:

- o Provide on-going site-wide landlord services for 9 major facilities on 560,000 acres, such as emergency preparedness, seismic and environmental monitoring, site planning, and flood research/mitigation. (ID) $10,988
- o Acquire capital equipment that is required to maintain safe and efficient operations for 14 site-wide service programs such as: the fire department, health physics, and Information Resources Management. (ID) 8,150

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III. Performance Summary (con't)

FY 1997 Planned Accomplishments: (con't)

o Continue activities for on-going construction projects and complete two construction projects, which will cost effectively improve the life-safety and health of site workers: the Fire Training Facility as part of the Emergency Response Facilities project (94-D-401), and the INEL Fire and Life Safety project (92-D-181). (ID)	1,340
o Initiate construction of one project at Idaho to replace deteriorating and insufficient infrastructure: Electrical Distribution Upgrade project (96-D-461). (ID)	6,862
o Complete GPP construction items to maintain a safe and cost efficient infrastructure, such as the replacement of 49,000 square feet of roofing on 3 facilities at Idaho. (ID)	4,807
o Provide required financial and program planning documents, such as Activity Data Sheets, Site Integration Planning, Process Tracking System/Site Management System input, and Multi-Year Program Plan; and submit site-wide inputs. (RL)	1,649
o Provide annual funding for the following: DOE grants for operation of the Hanford Oregon Waste Board, Washington State Department of Ecology's oversight and management of the Tri-Party Agreement, Hanford Filter Test Facility, Washington's emergency response capability and oversight of Hanford management practices, a multi-year Secretarial initiative to declassify 56,000 Hanford documents and documenting radiological doses received by residents near the Hanford site, educational information about the effects of exposure to the public and health officials through the Hanford Health Information Network (2,000,000), legal expenses associated with downwinder litigation, and payments in lieu of taxes to three Washington counties. (RL)	18,071
o Provide core infrastructure activities in order to support all Hanford environmental management programs. These activities include: replace 71,000 square feet of unsafe roofing on 15 buildings, demolish 9 general purpose buildings, replace or reline the 300 Area Process Sewer to ensure containment of waste, complete renovation of the 324 Facility (95-D-454) for compliance with Federal environmental and occupational safety and health requirements, maintain deteriorating roads and paved areas essential to site operations, upgrade emergency sirens for compliance, replace core sanitary sewer in 200 East area to comply with Tri-Party Agreement, replace deteriorated process water system in 325 building, and manage the general purpose infrastructure and site-support services of Hanford. (RL)	12,047
o Complete Phase II (final) construction and equipment outfitting of the HAMMER Training Center at Hanford and conduct training. (RL)	13,486
o Manage forest and land resources on a 300 square mile site; manage timber sales; document endangered wildlife and plantlife; perform water shed planning; control erosion; and, maintain secondary roads. (SR)	12,024
o Conduct ecological studies at the Savannah River Ecology Laboratory (SREL) (SR)	8,246
o Provide program support for engineering and project activities, training, budget, financial planning, and payment in lieu of taxes, as well as Historically Black Colleges and Universities, grants and general administrative services. (SR)	5,748
o Acquire capital equipment that is required to maintain safe and efficient operations for site-wide programs such as Information Resources Management, Engineering and Construction Services, material management, administrative services, utilities, central services, and transportation. (SR)	3,136
o Complete GPP construction items to maintain a safe and cost efficient infrastructure. (SR)	1,270

III. Performance Summary (con't)

FY 1997 Planned Accomplishments: (con't)

o Continue activities for on-going construction projects, which will allow the site to comply with state drinking water standards, the Clean Air Act, to support the various program missions: the HP Instrument Calibration Facility (92-D-143) and complete one construction project. (SR)	17,402
o Initiate construction of two projects at Savannah River to replace deteriorating and insufficient facility: HP Site Support Facility (96-D-423) and Environmental Monitoring Lab (96-D-470). (SR)	5,110
TOTAL, FY 1997 Site Integration	$130,336

Explanation of Funding Changes FY 1996 to FY 1997:

- o Decrease of $34,700,000 is due to pace of landlord facility replacements/upgrades at Richland and Savannah River.
- o Decrease of $7,000,000 is due to completion of Line Item Projects. (ID, RL)
  - Emergency Response Facility (94-D-401). (ID)
  - 324 Facility Compliance/Renovation (95-D-454). (RL)

Major Issues:

- o None

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MOUND & PINELLAS PROJECT OFFICE
(Tabular dollars in thousands, narrative in whole dollars)

I. Mission Supporting Goals and Objectives

The Pinellas Plant is a 97 acre site located in Pinellas County, Florida, about six miles from the City of St. Petersburg. The Pinellas Plant was an essential part of the Nation's defense nuclear weapons complex until production of weapons-related components was discontinued in September 1994. The plant manufactured neutron generators, miniaturized linear accelerators, and other high-technology nuclear components. In 1995, the Pinellas Plant was sold to the Pinellas County Industrial Council, and DOE leased back portions of the plant to complete final environmental remediation of the plant site which, except for a residual long-term groundwater pump-and-treat operation, is scheduled to be completed by the end of FY 1997. Activities at the Pinellas Plant are managed by the Albuquerque Operations Office. Legal drivers at Albuquerque include Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Resource Conservation and Recovery Act (RCRA), National Environmental Policy Act (NEPA), DOE Orders, Florida State laws and codes and Agreements-in-Principle (AIP). The mission of the Pinellas Plant involves completion of safe shutdown of the Defense Programs activities, removal of tritium and tritium contaminated processing equipment, disposition of all personal property and records, termination of its management and operating contract, and completion of most environmental restoration activities by the end of FY 1997.

The Mound Plant site is located in Miamisburg, Ohio, and was built in the late 1940's to support research and development and production activities for the Department's weapons and energy programs. It occupies 306 acres of land in southwestern Ohio. Weapons production support ended in 1994, when activities across the country were consolidated at the Kansas City Plant (KCP) in Missouri, Los Alamos, and Savannah River. Mound is currently processing tritium units for Defense Programs (DP) through CY 1997. These manufacturing and processing operations resulted in the contamination of soils and ground water with radioactive and hazardous chemicals. Mound has been placed on the National Priority List (NPL), and a Federal Facility Agreement (FFA) for accomplishing the remediation of Mound has been negotiated with the Environmental Protection Agency (EPA) and the State of Ohio. Activities at the Mound Plant are managed by the Miamisburg Area Office. The mission of the Mound Plant involves the transition from an active production plant to a total safe shutdown and cleanup of the facilities and soil, and sale of the property. This mission includes responsibility for operation of the plant infrastructure, disposition of nuclear materials, facility surveillance and maintenance, and remediation and title transfer of property.

The Nuclear Material and Facility Stabilization program assumed management of both the Pinellas and Mound Plants from DP on August 1, 1995, and assigned overall programmatic responsibilities to the Mound and Pinellas Project Office, which was realigned under the Office of Site Operations in December 1995. The Mound and Pinellas Project Office assumes a leadership role to ensure that DOE exits these sites in a safe, rapid, and cost effective manner which is responsive to community and other stakeholder concerns.

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II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Pinellas Activities:					
CERCLA	$ 599	$ 900	$ 690	$ -210	-23%
Facility Operations & Site Deactivation	38,095	3,269	3,664	+395	+12%
Landlord	0	25,811	27,613	+1,802	+7%
RCRA Materials	4,523	22,510	27,098	+4,588	+20%
TOTAL, Pinellas Activities	$ 43,217	$ 52,490	$ 59,065	$ +6,575	+13%
Mound Activities:					
CERCLA	$ 28,812	$ 89,078	$ 75,354	$ -13,724	-15%
Facility Operations & Site Deactivation	53,524	1,000	4,100	+3,100	+310%
RCRA Materials	11,145	8,063	6,788	-1,275	-16%
TOTAL, Mound Activities	$ 93,481	$ 98,141	$ 86,242	$ -11,899	-12%
TOTAL, Mound & Pinellas Project	$ 136,698	$ 150,631	$145,307	$ -5,324	-4%

III. Performance Summary

FY 1995 Accomplishments:

- o Successfully concluded the Nevada Operations (NVO) audit and began to ship low-level waste (LLW) from Pinellas to the Nevada Test Site (NTS) for disposal.
- o Provided for Potentially Responsible Party (PRP) contributions as required of Pinellas (Peal Oil).
- o Continued ground water remediation at the 4.5 Acre Site. (Pinellas)
- o Continued construction of final corrective measures for Pinellas Miscellaneous Sites (three sites).
- o Provided for public participation activities to ensure public acceptance of cleanup activities and decisions. (Pinellas)
- o Initiated interim measures at the West Fenceline. (Pinellas)
- o Initiated Northeast Site and Building 100/Old Drum Storage Area corrective measures construction. (Pinellas)
- o Provided for AIP support to Florida. (Pinellas)

III. Performance Summary (con't)

FY 1995 Accomplishments: (con't)

- o Performed scoping activities in preparation for transfer of the Mound and Pinellas Plants from DP to EM.
- o Accepted management responsibilities for Mound and Pinellas due to mission change from defense-related activities to Environmental Management activities.
- o Sold the Pinellas Plant to the Pinellas County Industry Council with planned completion of DOE mission in FY 1997.
- o Transferred management of the Mound Facility from Albuquerque to Ohio.
- o Resumed LLW soil shipments from Mound to the Nevada Test Site (NTS), 50,000 cubic feet since August 1994, with completion August 1995.
- o Began shipping LLW to Envirocare in Utah in July 1995, based on an exception granted in April 1995. (Mound)
- o Successfully completed the development/progress of mixed waste treatment technology, Packed Bed Reactor, Bio-Degradation, and Tritium Capture System. (Mound)
- o Completed dismantlement of Special Metallurgical (SM) building and breezeway. (Mound)
- o Completed limited decontamination of SM stack. (Mound)
- o Completed soil removal from SM Leach Field Catch Basin. (Mound)
- o Initiated removal from SM North Grass Area. (Mound)
- o Completed Fire Fighting Training Area Removal action. (Mound)
- o Completed Area 7 tank removal. (Mound)
- o Completed design for Operable Unit 4 (OU4) removal. (Mound)
- o Completed Record of Decision (ROD) for OU1. (Mound)
- o Made 10 percent of Mound releasable for sale or lease under CERCLA.
- o Completely shutdown 27 facilities. (Mound)

FY 1996 Accomplishments (To Date and Planned):

- o Continue shutdown and disposal of related hazardous and LLW. (Pinellas)
- o Operate the treatment systems for the 4.5 Acre Site and Miscellaneous sites. (Pinellas)
- o Continue interim measures for the West Fenceline. (Pinellas)
- o Initiate/continue Building 200/Waste Neutralization assessment. (Pinellas)
- o Provide for public participation activities to ensure public acceptance of cleanup activities and decisions. (Pinellas)
- o Make required PRP contribution. (Pinellas)
- o Commence cleanup of the radioactive and hazardous material areas. (Pinellas)
- o Complete disposition of former DP equipment. (Pinellas)
- o Complete disposition of classified parts and records. (Pinellas Plant)

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III. Performance Summary (con't)

FY 1996 Accomplishments (To Date and Planned) (con't)

- o Successfully characterized all mixed waste. (Mound)
- o Characterize and treat all Polychlorinated Biphenyl; Printed Circuit Board (PCB) and mixed waste oil. (Mound)
- o Develop plans to permanently remove all Transuranic Waste (TRU) waste. (Mound)
- o Implement ROD for OU1. (Mound)
- o Initiate removal action for OU4. (Mound)
- o Initiate two additional removal actions. (Mound)
- o Continue OU5 and OU9 Remedial Investigation/Feasibility Study (RI/FS). (Mound)
- o Continue assessment of building 21, SW/WD Building underground lines, and soils. (Mound)
- o Continue Decontamination and Decommissioning (D&D) of SM Area. (Mound)
- o Initiate D&D of Building 21. (Mound)
- o Continue D&D of underground lines and soils. (Mound)
- o Continue program management of D&D activities. (Mound)
- o Continue program management, community relations and Geographic Information Systems (GIS) development, in lieu of the costly RI/FS process. (Mound)
- o Develop and begin implementation of a project management to disposition the entire plant. (Mound)
- o Transfer 1.2g of plutonium and uranium to receiver sites, lower plant security to category III. (Mound)
- o Stabilize and repackage plutonium currently stored in T-Building. (Mound)
- o Completely shutdown 14 additional facilities. (Mound)
- o Complete non-nuclear reconfiguration program goals to support new Defense Program missions at designated receiver sites. (Mound)
- o Continue processing tritium units to support DP and cleanup activities, including shipping bulk tritium gas to Savannah River. (Mound)
- o Make 40 percent of the property releasable for sale or lease under CERCLA. (Mound)

FY 1997 Planned Accomplishments:

o Complete accelerated shutdown and disposal activities. (Pinellas)	$ 1,825
o Continue remediation at 4.5 Acre Site. (Pinellas)	690
o Complete assessment and remediation of Miscellaneous Sites. (Pinellas)	6,367
o Complete program management and PRP participation. (Pinellas)	464
o Complete disposition of all records, equipment, and materials. (Pinellas)	4,200
o Compete site-wide cleanup of buildings and systems and dispose of hazardous wastes. (Pinellas)	5,731
o Maintain site infrastructure to ensure safe working environments while completing all activities required for site departure. (Pinellas)	23,413
o Terminate the remaining 650 M&O employees. (Pinellas)	15,000
o Provide transition management, administrative, and planning activities. (Pinellas)	1,375

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III. Performance Summary (con't)

FY 1997 Planned Accomplishments (con't):

o Continue treatment and disposal of LLW and Mixed Wastes through shipment to NTS; shipment of mixed PCB waste to Toxic Substances Control Act (TSCA) Incinerator; and developing and submitting RCRA permit. (Mound)	6,788
o Continue OU1 ROD implementation. (Mound)	2,350
o Complete excavation activities for the Miami-Erie Canal removal action. (Mound)	8,360
o Continue soil removal projects. (Mound)	16,132
o Continue D&D of Building 21. (Mound)	2,107
o Continue OU2, OU5, and OU9 RI/FS (rebaselining will change OU numbers). (Mound)	2,470
o Continue program management, community relations, and GIS implementation in lieu of the costly RI/FS process. (Mound)	12,015
o Support budget development and site transition planning activities targeted toward the ultimate disposition of the Mound Plant. (Mound)	1,019
o Conduct surveillance to maintain all building safety envelopes. (Mound)	13,738
o Complete shutdown of 62 of 130 buildings. (Mound)	17,163
o Maintain site infrastructure to ensure safe working environments while supporting ongoing activities. (Mound)	4,100
TOTAL, FY 1997 Mound & Pinellas Project Office	$145,307

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Explanation of Funding Changes FY 1996 to FY 1997:

- o At the Pinellas Plant, additional funding of $1,609,000 will be used to implement Innovative Technology Remediation Demonstration (ITRD) projects to improve groundwater and in-situ soil treatment methodologies. Overall project completion date will be accelerated.
- o Increase of $15,000,000 will be used to terminate cost of remaining Pinellas M&O employees
- o Increase of $4,200,000 is due to disposition cost of records, equipment and other property at Pinellas.
- o Net reductions of $14,234,000 in Pinellas landlord and cleanup costs due to plant closeout and exit activities.
- o Reduction of $5,148,000 results from the lower safe shutdown program costs in FY 1997 and the impact of the successful implementation of the program in FY 1995 and FY 1996. This is principally seen in a lowering of the plant surveillance and maintenance activities, as well as the plant compliance activities. (Mound)
- o Productivity savings of $6,751,000 will be obtained through contract reform, process improvements, and privatization activities at Mound.

Major Issues:

- o None

SITE OPERATIONS - DEFENSE

PROGRAM INTEGRATION
(Tabular dollars in thousands, narrative in whole dollars)

I. Mission Supporting Goals and Objectives

The mission of the Office of Program Integration is to provide management systems and program specific technical support. Business management support is provided through the establishment of management plans and procedures, data management, systems, work breakdown structure, and baseline change control board. In addition, the Office serves as the focal point for program formulation and execution. The Office provides assistance to Site Operations in resolving crosscutting program and cross-field site issues. Benchmarking and performance goals development activities will be centered in this Office, as well as the responsibility for the Office of Site Operations Program Baseline Control Board System. Training under the Hazardous Waste Operations and Emergency Response (HAZWOPER) Standards is funded in this Office.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Program Integration	$ 12,011	$ 9,597	$ 9,704	+107	+1%
TOTAL, Program Integration	$ 12,011	$ 9,597	$ 9,704	+107	+1%

III. Performance Summary

FY 1995 Accomplishments:

- Provided internal program support, including development of management plans and program budget requests.
- Conducted worker training under requirements related to the HAZWOPER Standard. This involved Congressionally-mandated training of DOE workers and others associated with DOE EM activities such as the clean-up of hazardous substances, hazardous waste operations, and emergency response.

FY 1996 Accomplishments (To Date and Planned):

- Conduct training under HAZWOPER program. All full time and occasional clean-up workers and visitors must have, due to special hazards that exist at DOE hazardous waste sites, a minimum of 40 hours of training or 24 hours of training plus an 8-hour annual refresher training.
- Develop and establish all business management functions for the Office of Site Operations.
- Provide program specific planning guidance for the Office of Site Operations, including budget justification, WBS development, and issues resolution and is the focal point for crosscutting programmatic issues.

III. Performance Summary (con't)

FY 1996 Accomplishments (To Date and Planned): (con't)

- o Establish and monitor performance indicators for landlord/support costs and develop benchmarks for use in comparing DOE landlord costs to measure against comparable industrial standards.
- o Develop and maintain Site Operations Program Baseline Control Board System.
- o Provide specialized assistance to Site Operations in accomplishing specific program-related tasks and functions.

FY 1997 Planned Accomplishments:

o Continue to fund training at DOE Nuclear Weapons Facilities and related sites under the HAZWOPER program.	$ 8,000
o Continue to act as Program focal point for plans, processes, implementing procedures, and systems for effective and efficient Program formulation, execution, and evaluation. Maintain and implement Site Operations benchmarking and value engineering programs. Continue maintaining databases, conducting analyses, and disseminating results and lessons learned, and maintaining Program Baseline Control Board System	1,704
TOTAL, Program Integration	$ 9,704

Explanation of Funding Changes FY 1996 to FY 1997:

- o None

Major Issues:

- o None

ENVIRONMENTAL AND REGULATORY ANALYSIS
(Tabular dollars in thousands, narrative in whole dollars)

I. Mission Supporting Goals and Objectives

The Office of Environmental and Regulatory Analysis advocates and champions the resolution of environmental, legal and regulatory issues that cut across many sites and do not readily fall within the purview of the primary business lines. The Office serves as a facilitator, analyst and coordinator for the operations offices and the EM Program Offices in resolving these crosscutting issues. The Office also functions as a team to promote cost efficiencies within EM programs by establishing effective lines of communication with the programs and sites to: identify and assist in resolving crosscutting environmental and regulatory issues; facilitate the timely resolution of crosscutting and regulatory issues with the Office of General Council (GC) and the Assistant Secretary for Environmental, Safety, and Health (EH); and provide timely information and assistance to Assistant Secretary for Environmental Management (EM-1), Office of the Principal Deputy Assistant Secretary for Environmental Management (EM-2), and Office of Site Operations (EM-70) on environmental and regulatory issues. The Office ensures that necessary policy direction and guidance is provided to the Operations and EM Program Offices to successfully implement the negotiation and enhancement of compliance and cleanup agreements. The Office provides guidance and technical assistance on the NEPA compliance issues and acts as EM's NEPA Compliance Officer to promote cost effective compliance across the EM program.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Environmental and Regulatory Analysis	$ 1,489	$ 415	$ 772	+357	+86%
TOTAL, Environmental and Regulatory Analysis	$ 1,489	$ 415	$ 772	+357	+86%

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III. Performance Summary

FY 1995 Accomplishments:

- o Developed a "Partnering" program to work with regulators in achieving more cost-effective and timely actions, and assisted in the development of high performance teams at Richland, Laboratory for Energy-Related Health Research (LEHR), and Mound, resulting in an estimated $275,000,000 of cost avoidance at Hanford and acceleration of cleanup by five years at LEHR.
- o Led the DOE participation on an Interagency Workgroup addressing EPA administrative reforms such as the lead regulator concept, development of risk-based priority setting, unified cleanup standards, and improved permitting procedures to enhance the cleanup of Federal Facilities.
- o Developed RCRA/CERCLA draft integration guidance that served to increase the awareness of EPA, States, and DOE field managers of the wasted resources resulting from current integration approaches that require dual regulatory compliance with RCRA and CERCLA remediation programs.
- o Supported the Assistant Secretary in improving the consideration of funding and increasing flexibility in enforceable environmental agreements by developing a "rolling milestone" approach and organized a National Enforcement Conference to discuss this approach with regulators and stakeholders.
- o Prepared an EM FY 1997 Missed Milestone Report for the Secretary, which identified enforceable milestones that may be missed in FY 1997 due to budget constraints or other programmatic reasons.
- o Prepared a report for the Secretary that detailed the status of regulator discussions on the FY 1997 budget and compliance impacts of reduced funding.
- o Supported the Office of Waste Management in various aspects of Federal Facility Compliance Act implementation, including review of draft site treatment plans for the treatment of mixed waste and compliance orders implementing the plans.
- o During the first session of the 104th Congress, coordinated the EM response to 109 pieces of proposed legislation, testimony, agency reports, and Secretarial letters, including United States Enrichment Corporation (USEC) privatization, deactivation privatization, risk assessment, Superfund reform, the National Defense Authorization Act, and Hanford efficiency legislation.
- o Supported program and field offices in negotiating and gaining approval of new AIPs for Alaska and Missouri and renegotiated AIP for Idaho.
- o Developed new guidance on AIP program policies, agreement language, and the Headquarters approval process for AIPs.

FY 1996 Accomplishments (To Date and Planned):

- o Develop and implement "Partnering" programs for the Tank Waste Remediation System (TWRS) and the Environmental Restoration Program at Hanford to work with regulators in achieving more cost-effective and timely actions, including an estimated $200,000,000 of cost avoidance at Hanford.
- o Participate on Interagency Workgroups and the Senior Management Team addressing implementation of EPA administrative reforms such as the lead regulator concept, development of risk-based priority setting, unified cleanup standards, and improved permitting procedures to enhance the cleanup of Federal Facilities.

2651

III. Performance Summary (con't)

FY 1996 Accomplishments (To Date and Planned): (con't)

- o Support the Assistant Secretary in improving the consideration of funding and increasing flexibility in enforceable environmental agreements.
- o Prepare an EM FY 1998 Missed Milestone Report for the Secretary, to identify enforceable milestones that may be missed in FY 1998 due to budget constraints and other programmatic reasons.
- o Support the Office of Waste Management in various aspects of Federal Facility Compliance Act implementation, including review of site treatment plans for the treatment of mixed waste and compliance orders implementing the plans for the Nevada Test Site, West Valley Demonstration Project and Brookhaven National Laboratory.
- o Establish an EM INTERNET WEB Page that provides access to enforceable cleanup and compliance agreement information and milestone commitments.
- o Respond to proposed legislation, testimony, agency reports, and Secretarial letters.
- o Support program and field offices in renegotiating and gaining approval AIPs for the States of Texas and Mississippi and new AIPs as required.
- o Issue guidance on the EM Headquarters and field process to approve cleanup and compliance agreements.
- o Develop an EM-wide NEPA database that provides technical information on ongoing and approved NEPA actions.
- o Issue EM NEPA procedures guidance.
- o Begin development of technical guidance for preparation of standardized EM NEPA documents.

FY 1997 Planned Accomplishments:

PARTNERING/TEAMING ACTIVITIES $300

- o Develop and implement "Partnering" programs for additional sites to work with regulators in achieving more cost-effective and timely actions.
- o Facilitate the forming of high-powered corporate teams with DOE and regulatory officials that will work to resolve environmental and compliance issues and achieve more cost-effective and timely actions.

ENVIRONMENTAL AND REGULATORY ANALYSIS ACTIVITIES 172

- o Participate on Interagency Workgroups addressing EPA administrative reforms.
- o Support the Assistant Secretary in improving the consideration of funding and increasing flexibility in enforceable environmental agreements.
- o Prepare an EM FY 1999 Missed Milestone Report for the Secretary, to identify enforceable milestones that may be missed in FY 1999 due to budget constraints and other programmatic reasons.

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SITE OPERATIONS - DEFENSE - ENVIRONMENTAL AND REGULATORY ANALYSIS (con't)

III. Performance Summary (con't)

FY 1997 Planned Accomplishments: (con't)

ENVIRONMENTAL AND REGULATORY ANALYSIS ACTIVITIES (con't)

- o Respond to proposed legislation, testimony, agency reports, and Secretarial letters.
- o Update the EM INTERNET WEB Page that provides access to enforceable cleanup and compliance agreement information and milestone commitments.
- o Support program and field offices in renegotiating and gaining approval of AIPs for the States of Kentucky and Tennessee, and new AIPs as required.

NEPA ACTIVITIES	300

- o Update an EM-wide NEPA database that provides information on ongoing and approved NEPA actions.
- o Develop technical guidance for preparation of EM NEPA documents.
- o Begin assessment of technical models to be used in preparing EM NEPA documents.
- o Develop standardization norms for preparation of NEPA documents for EM projects.

TOTAL, FY 1997 Environmental and Regulatory Analysis	$772

2653

Explanation of Funding Changes FY 1996 to FY 1997:

- o Increase of $200,000 is due to increased site presence to facilitate and implement partner/teaming programs to work with regulators in achieving more cost-effective and timely actions by streamlining regulatory strategies.
- o Increase of $157,000 is due to increased role in assessing and implementing standard administrative and technical procedures in preparing EM NEPA documents, including technical model analysis to drive down the costs of preparing EM NEPA documentation.

Major Issues:

- o None

TRANSPORTATION, EMERGENCY MANAGEMENT, AND CHARACTERIZATION MANAGEMENT

(Tabular dollars in thousands, narrative in whole dollars)

I. Mission Supporting Goals and Objectives

The Office of Transportation, Emergency Management, and Characterization Management is responsible for the Department-wide transportation, packaging, and transportation emergency preparedness function. This Office is also responsible for EM corporate emergency management and analytical services policy decisions, and program development. Activities in the three program areas support the following Office goals:

- o Assist the field in arranging for safe, economical, and regulatory-compliant transportation of DOE materials.
- o Enhance safety and increase efficiency by providing standardized methods and tools for the management of DOE transportation activities.
- o Certify and approve DOE hazardous material packaging for use.
- o Assure availability of appropriate packaging and technologies to support transportation of DOE materials.
- o Provide capability for preparedness in the event of an operational emergency involving DOE shipments of hazardous materials.
- o Advance EM's analytical services to a superior level of efficiency, productivity, accountability, and rigor.
- o Ensure that Federal, tribal, state, and local emergency responders have the policies, training, and equipment necessary to safely and efficiently respond to accidents and incidents involving DOE unclassified radioactive material.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Transportation Management	$ 21,284	$ 11,647	$ 9,894	$ -1,753	-15%
Emergency Management	2,962	464	3,150	+2,686	+579%
Characterization Management	13,201	1,512	6,452	+4,940	+327%
TOTAL, Transportation, Emergency Management, and Characterization Management	$ 37,447	$ 13,623	$ 19,496	$ +5,873	+43%

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TRANSPORTATION MANAGEMENT

I Mission Supporting Goals and Objectives

The Secretary's Alignment Initiative #38 was established in FY 1995 to realign and reengineer the Department's transportation and packaging activities. The recommended approach was to consolidate corporate transportation and packaging activities into one Headquarters organization and to reengineer the transportation and packaging operations over the next several years. This approach provides a single voice for transportation and packaging issues and develops systematic, comprehensive, and consistent approaches to perform Departmental transportation and packaging activities more efficiently and effectively. The first step in the initiative was to consolidate the transportation and packaging safety activities of the Packaging Certification and Transportation Safety activity in EH with the Transportation Management Program.

Within the Department of Energy, the Transportation Management Program has the overall responsibility (except weapons, weapons components, and commercial irradiated fuel) of assuring the proper packing, shipment, and receipt of hazardous materials (particularly radioactive) and hazardous wastes and substances. This Department-wide program provides the complex with the corporate level (crosscutting) policy, direction, tools and technical assistance necessary to enable the sites to move DOE materials safely, legally, and in a cost-effective and efficient manner. The Program assures the uninterrupted flow of all goods and materials of the Department to achieve production, waste management, and environmental restoration goals and objectives. The Program is responsible for the coordination of DOE-wide integrated transportation and packaging research, development, testing, and evaluation programs, and support for regulatory initiatives.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Transportation Management	$ 21,284	$ 11,647	$ 9,894	$ -1,753	-15%

III. Performance Summary

FY 1995 Accomplishments:

- o Developed and implemented new DOE Order 460.2, "Departmental Materials Transportation and Packaging Management."
- o Operated, maintained, and provided support for existing transportation automation systems.
- o Established a cooperative agreement with the GSA to utilize the Automated Transportation Management System as the standard, nation-wide automated system for the movement of domestic freight (government-wide cost-savings initiatives).
- o Issued a catalog of approved Department of Transportation Specification 6M packaging, including procedures for resubmitting newly developed packaging for approval.
- o Developed the Hedgehog, which is a Type A shielded packaging for transporting liquids up to one liter.
- o Developed and supported ballot of Phase I American National Standards Institute N14.31 "Wire Rope Tiedown Standard for Radioactive Materials Packages."
- o Renegotiated DOE-wide less-than-truckload rate agreements for increased cost savings on transportation activities.
- o Developed (jointly with DOE Office of Civilian Radioactive Waste Management) route selection guidance recommendations for DOE shipments of Highway Route Controlled Quantities of radioactive materials.
- o Developed Transportation Routing Analysis Geographic Information System (GIS) model/database for rail and water networks.
- o Developed the Hazardous Materials Awareness Computer Based Training Program to assist the DOE sites in complying with Federally-mandated training requirements on the preparation of hazardous materials shipments for off-site transport.
- o Produced a three-part hazardous materials video for first responders in a joint activity with the Department of Transportation.
- o Provided assistance in support of the Urgent Relief Acceptance of Foreign Reactor Spent Nuclear Fuel and the Cesium Capsule Return Program shipping campaigns.
- o Completed a Congressionally-mandated study and implementation plan for the "Safety of Shipments of Plutonium by Sea."
- o Participated in a follow up study on "Safety of Shipments of Plutonium by Sea" with the International Atomic Energy Agency/International Maritime Organization (IAEA/IMO) to evaluate the risk of transporting radioactive materials by sea.
- o Initiated the realignment/reengineering of the Department's transportation and packaging activities.

2656

III. Performance Summary (con't)

FY 1996 Accomplishments (To Date and Planned):

- Operate and maintain the Automated Transportation Management System at DOE sites and work with the GSA to implement as a national system, with a potential cost savings of $20,000,000 annually.
- Operate the Department's computerized Satellite Communications and Tracking System (TRANSCOM)
- Update the Hazardous Materials Modular Training Program and the computer-based training program, maintain the advanced level transportation training program courses, and provide updates to the DOE sites and external users to meet Federally-mandated training requirements. This program provides significant cost-savings to the Department.
- Integrate shielding analysis into design tools to allow simultaneous coordination of structural and thermal design constraints for radioactive materials packaging.
- Continue integration of GIS data into transportation risk analysis tools, (e.g., Radioactive Materials Transportation Risk Model).
- Maintain the Transportation Routing Analysis GIS for rail, waterway, and highway modes.
- Conduct DOE-wide transportation rate/service agreement negotiations to assure the lowest cost carriers for DOE shipments.
- Facilitate Centralized Packaging Procurement initiative to reduce overall Departmental cost for standardized packaging.
- Continue review of the Department's transportation and packaging operations and subsequent reengineering activities.

FY 1997 Planned Accomplishments:

- Operate and maintain the Automated Transportation Management System, and its components, Prospective Shipments Module, Rate/Route Module; conduct "lessons learned" evaluation for improving efficiency and economy; and, implement necessary updates.	$ 1,000
- Operate TRANSCOM.	500
- Maintain transportation operations and traffic management programs, including: assuring only highly qualified carriers transport DOE hazardous materials, conducting commercial carrier rate/service negotiations, conducting site regulatory compliance evaluations and providing technical assistance, maintaining the Departmental materials packaging clearinghouse to improve packaging utilization and selection, and administering the Departmental Explosives Classification and Registration program.	1,084
- Update the Hazardous Materials Modular Training Program and the computer-based training program, maintain the advanced level transportation training program courses, and provide updates to the DOE sites and external users to meet Federally-mandated training requirements.	1,000
- Provide technical analyses and studies for transportation and packaging standards development, and development of national and international radioactive transportation and packaging regulations.	1,500
- Continue development of engineering analysis and design tools and new materials investigations to improve packages for unique radioactive materials.	2,550

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III. Performance Summary (con't)

FY 1997 Planned Accomplishments: (con't)

o Operate, maintain, and continue development of Departmental transportation risk analysis tools in support of Environmental Assessment/Environmental Impact Statement, and continue work associated with the "Safety of Shipments of Plutonium by Sea".	1,500
o Convene at least six integration and information forums for DOE programs and external parties, including the local government workshops and the Transportation External Coordination Working Group to continue improved external stakeholder communications to ensure appropriate level of stakeholder involvement in DOE shipping activities.	760
TOTAL, FY 1997 Transportation Management	$ 9,894

PACKAGING CERTIFICATION AND TRANSPORTATION SAFETY

I. Mission Supporting Goals and Objectives

This program is budgeted within the Office of Environment, Safety, and Health, Office of Nuclear Facilities Safety at a total of $5,700,000; however, through a strategic alignment initiative, it is being managed by the Office of Environmental Management, Office of Site Operations. The budget for this activity will be moved to EM in FY 1998. Activities include developing, coordinating, and implementing policies, standards, and guidance related to aviation, maritime, rail, highway, pipeline, and hazardous materials safety; performing evaluations and analyses of safety analysis reports for packaging; providing external coordination between the Department and other governmental, commercial, and international bodies regarding transportation safety and packaging certification; participating in the development of transportation safety and packaging standards by national and international organizations; coordinating within the Department all matters pertaining to hazardous materials package certification and transportation safety; overseeing field aviation, maritime, rail, highway, and pipeline safety implementation activities as they relate to the transportation of personnel and hazardous materials. Packaging Certification and Transportation Safety manages the hazardous materials packaging safety programs to ensure safety in all modes of transport, including air, rail, water, highway, and pipeline.

EMERGENCY MANAGEMENT

I. Mission Supporting Goals and Objectives

The Emergency Management Program provides the Department with the capability for preparedness in the event of an operational emergency involving shipments of DOE non-weapon radioactive and hazardous materials in transit. It also provides the Office of Environmental Management with the capability for preparedness in the event of an operational emergency at EM facilities.

II. Funding Schedule:

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Emergency Management	$ 2,962	$ 464	$ 3,150	$ +2,686	+579%

III. Performance Summary

FY 1995 Accomplishments:

- Managed the transportation emergency preparedness training program, which covered a wide spectrum of training areas, ranging from a basic orientation workshop to advanced emergency management procedures.
- Updated the Criteria for Evaluation of Operational Emergency Plan to include Federal regulatory requirements and published the document in conjunction with the DOE Offices of Defense Programs and Energy Research.
- Assisted several EM field elements in planning, training, and exercises supporting the Transportation Emergency Preparedness Program.
- Completed the review and yearly update of several EM Headquarters planning documents, including the EM Operational Emergency Plan, the Emergency Preparedness Implementation Procedures, and EM Headquarters Drills and Exercise Plan.
- Developed the FY 1995 EM Consolidated Emergency Readiness Assurance Plan.
- Managed the EM Duty Officer Program and the emergency management team.

FY 1996 Accomplishments (To Date and Planned):

- Develop the Department of Energy Transportation Emergency Preparedness Guide, which will provide for a more comprehensive and standardized program throughout the DOE complex.
- Develop emergency response training materials for use by State, Tribal, and local governments to train responders in safe, efficient, and effective procedures for transportation accidents involving for radioactive materials.
- Operate the Department of Energy's training program for Federal, State, Tribal, and local emergency responders to transportation accidents involving DOE radioactive materials.

2659

III. Performance Summary (con't)

FY 1996 Accomplishments (To Date and Planned): (con't)

- o Integrate EM programmatic emergency management needs into the Department-wide emergency management system.
- o Administer the technical response portion of the EM Operational Emergency Management Team. This team is the Department's Headquarters vehicle for responding to operational emergencies.

FY 1997 Planned Accomplishments:

o Initiate the implementation of a comprehensive Transportation Emergency Preparedness exercise program and technical assistance program for the Department of Energy.	$ 1,019
o Initiate implementation of a new Transportation Emergency Preparedness training program, Transportation Emergency Preparedness Program national plan and a new field assistance program.	1,000
o Complete Transportation Emergency Preparedness Guide, which provides for a standardized comprehensive program for the Department of Energy	231
o Continue to operate Transportation Emergency Preparedness training program for Federal, State, Tribal, and local governments	500
o Develop a national standard for radioactive materials response equipment.	200
o Review five high priority facility emergency plans by the end of FY 1997.	70
o Provide for Headquarters participation in three facility emergency response exercises.	30
o Provide direction for a national transportation, full field exercise in FY 1997.	100
TOTAL, Emergency Management, FY 1997	$ 3,150

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CHARACTERIZATION MANAGEMENT

I. Mission Supporting Goals and Objectives

The Characterization Management Program is responsible for supporting all EM programs to assure that credible, cost-effective sampling and analytical needs are met. These analytical programs assure that the data vital for making correct decisions regarding waste operations and environmental remediation are available, and meet the needs of EM, regulators, and the public. It provides guidance, training, and technical assistance to field sites in applying the Data Quality Objectives process across all EM characterization data planning, and in applying the Streamlined Approach to Environmental Restoration to remediation projects. The program provides EM guidance, training, and assistance to the field in establishing and maintaining a cost-effective quality assurance programs, including assistance with laboratory performance evaluation programs to ensure that EM uses only reliable laboratories for its programs. This involves evaluations of commercial labs to reduce or eliminate duplicative audits of the same laboratories by multiple field offices. The program assists in establishing integrated Field Sample Management Programs at each operations office to centralize and optimize business management of their characterization system, and consolidates EM analytical needs and available lab capacity. It also provides the EM standard guidance on contracting for analytical services and standardizing specifications for automating data management and review processes to save substantial time, cost, and elimination of duplicate efforts.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Characterization Management	$ 13,201	$ 1,512	$ 6,452	$ +4,940	+327%

III. Performance Summary

FY 1995 Accomplishments:

- Saved $11,500,000 through improved field business practices as they relate to obtaining analytical services.
- Utilized sampling needs and capacity projections in field decisions on reconstructing/streamlining analytical laboratories at Idaho and Hanford and projecting transportation requirements of samples and materials.
- Assisted the field on Data Quality Objectives/Streamlined Approach for Environmental Restoration (DQO/SAFER) planning for specific projects, which saved $16,000,000 in FY 1995 due to avoidance of unnecessary sampling and analyses.
- Provided a program to evaluate the ability of laboratories to analyze samples containing both hazardous and radioactive constituents.
- Published an updated Methods Compendium with technically accepted sample analysis procedures for EPA defined hazardous constituents in radioactive waste.

III. Performance Summary (con't)

FY 1996 Accomplishments (To Date and Planned):

CHARACTERIZATION PLANNING AND EVALUATION ACTIVITIES

- o Assist Headquarters and the field in executing DQO/SAFER planning on specific projects to ensure only the data type and data quality required for decision making are collected.
- o Work with EPA to define and promote the use of Data Quality Assessment processes to assure that data collected meets the intended uses as defined by the DQO/SAFER process.
- o Continue site-wide characterization effort, including characterization of background surficial soils, seep of low measurement, geophysical logging aquifer testing, 3-dimensional computer modeling of hydrogeology, and monitoring of new and existing monitoring wells at reduced levels; continue management of the Rocky Flats Environmental Restoration Database and analytical support services.

SAMPLING AND ANALYSIS QUALITY ASSURANCE ACTIVITIES

- o Assist field in establishing and maintaining quality assurance programs for sampling and analysis.
- o Provide in-house performance evaluation of laboratories providing analyses of samples containing low-level (environmental or ambient) and higher-level radioactivity and mixed radiological-hazardous constituents.
- o Work with the field and Headquarters to provide management and technical evaluations of environmental sampling and analysis activities carried out in the field.

CHARACTERIZATION SYSTEM OPTIMIZATION ACTIVITIES

- o Provide support to the field in establishing infrastructure and systems to manage the costs of sampling and analysis programs that meet DOE commitments to the General Accounting Office (GAO) and Congress.
- o Provide the field with models for the projection of analytical needs and capacities to cost-effectively allocate environmental samples between in-house and commercial laboratories.

III. Performance Summary (con't)

FY 1996 Accomplishments (To Date and Planned): (con't)

CHARACTERIZATION SYSTEM OPTIMIZATION ACTIVITIES (con't)

- o Provide guidance for laboratory contracting consistency and for standardizing electronic data delivery, and coordinate procurement approaches with the Office of Human Resources and Administration (HR).

METHODS AND INSTRUMENTATION

- o Develop and/or validate laboratory methods for analyzing radioactive and mixed waste samples that meet regulatory requirements. Existing hazardous constituent analytical methods and associated equipment were not designed to handle radioactive samples.
- o Provide analytical methods that are less costly, less time consuming, and that generate less laboratory mixed waste than current methods.

FY 1997 Planned Accomplishments:

CHARACTERIZATION PLANNING AND EVALUATION ACTIVITIES ..... $ 3,175

- o Continue to assist Headquarters and the field in executing DQO/SAFER planning on specific projects to ensure that only types and quality of data required for decision making are collected.
- o Continue the collaboration with EPA to define and promote the use of Data Quality Assessment processes to assure that data collected meet the intended uses as defined by the DQO/SAFER process.
- o The performance measures for the success of these programs are decreased cost of characterization and assurance of regulatory acceptance of the data.

SAMPLING AND ANALYSIS QUALITY ASSURANCE ACTIVITIES 800

- o Continue to assist the field in establishing and maintaining quality assurance programs for sampling and analysis. The performance measure for the success of this program is increased quality of the characterization data that ensures EM milestones are met as scheduled.
- o Provide in-house performance evaluation of laboratories providing analyses of samples containing low-level (environmental or ambient) and higher-level radioactivity and mixed radiological-hazardous constituents. The success of the program is measured through the use of this information by the field to assure the utilization of only credible laboratories for sample analyses. Continue to provide management and technical evaluation support and assistance to the field and Headquarters for environmental sampling and analysis activities carried out in the field.

2663

III. Performance Summary (con't)

FY 1997 Planned Accomplishments: (con't)

CHARACTERIZATION SYSTEM OPTIMIZATION ACTIVITIES 1,752

- o Provide systems management support to the field to control the costs of sampling and analysis programs. The performance measure associated with this program is a reduction in the cost of characterization and meeting commitments to GAO.
- o Continue to provide the field with new and updated models for the projection of analytical needs and capacities to cost-effectively allocate environmental samples between in-house and commercial laboratories. The performance measure for this program is a reduction in the cost of characterization due to optimization of capacity use.
- o Support laboratory efforts towards maintaining contracting consistency and standardization of electronic data delivery. The success of this program will be measured by a decrease in the cost of analytical services in conjunction with an accelerated schedule.

METHODS AND INSTRUMENTATION 725

- o Continue the development and/or validation of laboratory methods for analyzing radioactive and mixed waste samples that meet regulatory requirements. Previous hazardous constituent analytical methods and associated equipment were not designed to handle radioactive samples. The success of this program will be measured by the number of methods that gain EPA regulatory acceptance and are provided in the compendium.
- o Continue to provide analytical methods that are less costly, less time consuming, and that generate less laboratory mixed waste than current methods. The success of this program will be measured by a reduction in the cost and time associated with characterization and a reduction in the amount of mixed waste generated.
- o Perform analytical services and maintain the analytical facilities which sample over 70,000 items per year for Liquid Stabilization, Thermal Stabilization, Residue Elimination, Environmental Monitoring, Waste Management, Waste Characterization, Environmental Restoration, and Worker Protection Programs. Maintain the analytical and non-nuclear production facilities by performing surveillance and maintenance activities and by providing building support functions.

TOTAL, Characterization Management, FY 1997 ..... $ 6,452

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SITE OPERATIONS - DEFENSE - TRANSPORTATION, EMERGENCY MANAGEMENT, AND CHARACTERIZATION MANAGEMENT (con't)

Explanation of Funding Changes FY 1996 to FY 1997:

Transportation:

- o Decrease of $1,000,000 will increase risk of an inappropriate transportation mode or package being used to transport hazardous materials, resulting in fines from the regulating agencies and/or loss of public confidence in DOE shipments.
- o Decrease of $700,000 will delay implementation of the automated logistic system will be delayed. These systems reduce the cost of DOE transportation transactions and allow State, Tribal, and local officials access to DOE transportation information.

Emergency Management:

- o Increase of $1,000,000 provides for the Department's transportation emergency exercise program at a time when DOE shipments are dramatically increasing and the perception of risk by State, Tribal, and local officials is increasing.
- o Increase of $1,000,000 provides for radiological emergency responder training along shipping corridors to ensure DOE shipments move without interruption.
- o Increase of $700,000 is provided for the facility emergency exercise program to ensure worker safety at EM facilities.

Characterization Management:

- o Increase of $1,100,000 provides the potential to increase the return on investment gained by site-specific project planning utilizing advanced characterization techniques.
- o Increase if $1,000,000 will provide for the continued development of decision support software that defines data collection needs and identifies candidate sampling locations.
- o Increase of $800,000 will continue the program that develops, validates, and compiles methods and instrumentation for radioactive and mixed waste samples.
- o Increase of $2,000,000 will continue the development of infrastructure necessary to manage sampling and analysis business activities and assure the quality of the laboratory performance evaluation program.

Major Issues:

- o None

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OFFICE OF POLLUTION PREVENTION

(Tabular dollars in thousands, narrative in whole dollars)

I. Mission Supporting Goals and Objectives

The Department of Energy (DOE) Pollution Prevention mission is to reduce generation and release of multi-media wastes and pollutants by implementing cost-effective waste minimization and pollution prevention technologies, practices, and policies, while conducting the Department's operations in compliance with applicable environmental requirements. The Office of Pollution Prevention is responsible for implementing the Department's Pollution Prevention mission.

The primary objective of the Department's pollution prevention program is to reduce the generation of all waste streams in order to minimize the impact of the Department's operations on the environment, reduce operational cost, and improve the energy efficiency and health and safety of its operations. Pollution prevention is also required by various federal laws and Executive Orders, including but not limited to: Pollution Prevention Act of 1990; Resource Conservation and Recovery Act (RCRA); Emergency Planning and Community Right-to-Know Act (EPCRA); and Executive Order 12856.

The Department's Pollution Prevention program will affect all of its program elements, including Environmental Management, Defense Programs, Nuclear Energy (NE), and Energy Research. Ten Operations Offices (with 30 major sites) have site-wide pollution prevention programs, including Albuquerque, Oak Ridge, Savannah River, Idaho, Rocky Flats, Richland, Chicago, Oakland, Nevada, and Ohio.

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In FY 1996, EM is seeking to establish aggressive DOE-wide Secretarial goals, to be achieved by December 31, 1999, as follow:

- o Reduce total releases and offsite transfers for treatment and disposal of Emergency Planning and Community Right-to-Know Act (EPCRA) 313 toxic chemicals from routine operations by 50 percent.
- o Reduce the generation of radioactive waste from routine operations by 50 percent.
- o Reduce the generation of low-level mixed waste from routine operation by 50 percent.
- o Reduce the generation of hazardous waste from routine operations by 50 percent.
- o Reduce the generation of sanitary waste from routine operations by 33 percent.
- o Divert from recycling 33 percent of sanitary waste from all operations.
- o Increase the affirmative procurement of EPA-designated recycled products to 100 percent except where they are not available competitively at a reasonable price or do not meet performance standards.

Progress toward achieving the goals will be determined by using 1993 as the baseline year.

SITE OPERATIONS - DEFENSE - POLLUTION PREVENTION

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Pollution Prevention	$ 29,257	$ 20,004	$ 23,854	+3,850	+19%
TOTAL, Pollution Prevention	$ 29,257	$ 20,004	$ 23,854	$ +3,850	$ +19%

III. Performance Summary

FY 1995 Accomplishments:

- Initiated the second round of the High Return-On-Investment (ROI) Program, which identified projects with over $80,000,000 of annual savings.
- Prepared reports to Federal Environmental Executive on compliance with Executive Order 12973 and 12856 regarding the Department's program and progress in reducing waste, recycling excess material, and purchasing EPA-designated recycled material.
- Pilot tested pollution prevention tools for new design for three projects, and trained over 250 DOE personnel across the complex on the use of the tools.
- Provided funds to implement over 50 projects that reduce waste and return over double the cost of the projects in annual savings to DOE.
- Provided technical support, training, and tools to reduce cost of program development to the field.
- Compiled information on complex-wide waste generation rate to be used as baseline to measure future pollution prevention progress.
- Operate site-wide pollution prevention programs at ten Operations Offices with 30 sites that comply with Federal regulations and Executive Orders, and which are consistent with the guidance in the 1994 Waste Minimization/Pollution Prevention Crosscut Plan.

III. Performance Summary (con't)

FY 1996 Accomplishments (To Date and Planned):

- o Initiated pilot generator set-aside program at three Operations Offices. When fully implemented, this program will make waste generators more accountable for the waste they generate.
- o Issue new Pollution Prevention Program Plan with Secretarial goals to focus the Department's pollution prevention effort.
- o Issue the Annual Waste Generation and Waste Minimization/Pollution Prevention Accomplishment Report for the 1993 and 1994 period.
- o Increase collaborative efforts with other organizations such as Field Management (FM) to coordinate HQ guidance to the field.
- o Serve as champion for the Round 2 High ROI projects to obtain funding from DP, Energy Research, and EM.
- o Initiate the development of a consistent and coordinated EM wide pollution prevention program.
- o Provide pollution prevention inputs to other initiatives such as Baseline Environmental Management Report (BEMR), Defense Nuclear Facilities Safety Board (DNFSB-94-2), and EM/DOE budget calls.
- o Continue tracking Field progress and prepare reports to meet Executive Orders requirements.
- o Continue to develop and maintain the site-wide pollution prevention programs. The priority items are identification and implementation of ROI projects.
- o Implement high ROI projects with avoided cost of $100,000,000 within ten years.
- o Reduce generation of hazardous, low-level, and mixed waste by 180,000 cubic feet total, with 1993 as baseline year.

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FY 1997 Planned Accomplishments:

- o Implement a DOE-wide Pollution Prevention Program by conducting the following activities: 12,384
  - o Provide technical Support to the field to develop their generator set-aside and ROI programs;
  - o Provide technical support, training, and tools across the complex;
  - o Compile site information and assess field performance by using standard performance measures;
  - o Establish program which identifies ROI projects that cross organizational lines;
  - o Continue efforts to comply with Executive Orders;
  - o Develop benchmarking field pollution prevention program; and
  - o Provide coordination and support at Headquarters and field to develop and implement consistent pollution prevention program across the complex.

SITE OPERATIONS - DEFENSE - POLLUTION PREVENTION (con't)

FY 1997 Planned Accomplishments: (con't)

- Review/refine/operate the site-wide pollution prevention programs to be consistent with the Secretarial reduction goals as stated in the DOE 1996 Pollution Prevention Program Plan. Shift emphasis to achieve the overall Departmental pollution prevention objectives of: 11,470

  - Establish Operations Office ROI program;
  - Implement incentive programs;
  - Achieve the Secretarial reduction, recycling, and procurement goals; and
  - Implement pollution prevention programs that are in compliance with requirements of regulations and Executive Orders. Reduce waste by 20 percent from the 1993 baseline and implement ROI programs which will realize cost avoidance/savings of $100,000,000 within ten years across the complex.

Total, FY 1997, Pollution Prevention 23,854

Explanation of Funding Changes FY 1996 to FY 1997:

- Increase of $3,850,000 will be used to replace critical activities reduced during FY 1996.

Major Issues:

- None

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SITE OPERATIONS - DEFENSE
(obligations in thousands)

PROGRAM OBJECT CLASS SUMMARY

Direct Obligation:		FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Personnel Compensation:						
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.9	Total Personnel Compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13.0	Benefits for former personnel	0	0	0	0	0
21.0	Travel and transportation of persons	0	0	0	0	0
22.0	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Communications, utilities, and misc charges	0	0	0	0	0
24.0	Printing and reproduction	0	0	0	0	0
25.1	Advisory and assistance services	29,257	0	20,004	0	23,854
25.4	Operation of GOCOs	297,831	0	281,446	0	256,654
25.5	Research and development	0	0	0	0	0
26.0	Supplies and materials	0	0	0	0	0
31.0	Equipment	52,994	0	31,896	0	16,546
32.0	Land and structures	74,866	0	49,827	0	32,415
33.0	Investments and loans	0	0	0	0	0
42.0	Insurance claims and indemnities	0	0	0	0	0
99.0	Subtotal, Direct Obligations	$ 454,948	$ 0	$ 383,173	$ 0	$ 329,469

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SITE OPERATIONS - DEFENSE - PROGRAM OBJECT CLASS SUMMARY

Direct Obligation:	FY 1995 Comp.	FY 1995 Non-Comp	FY 1996 Comp.	FY 1996 Non-Comp	FY 1997 Request
Reimbursable Obligations	0	0	0	0	0
99.9 Total Obligations	$ 454,948	$ 0	$ 383,173	$ 0	$ 329,469
Recovery of prior year obligations	0	0	0	0	0
Unobligated balance available, start of year	0	0	0	0	0
Unobligated balance available, end of year	0	0	0	0	0
Budget Authority	$ 454,948	$ 0	$ 383,173	$ 0	$ 329,469

SITE OPERATIONS - DEFENSE

CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY

Capital Operating Expense Summary Listing:

	FY 1995	FY 1996	FY 1997
GPP Estimate:	$ 19,436	$ 12,550	$ 13,569
Capital Equipment Estimate:	52,994	31,896	16,546

Construction Project Summary:

Project No.	Project Title	TEC	Previous Obligations	FY 1995 Adjusted	FY 1996 Amended	FY 1997 Request	Remaining Balance
96-D-461	Electrical Distribution Upgrade, Idaho National Engineering Laboratory, Idaho	$ 10,879	$ 0	0	$ 1,039	$ 6,790	$ 3,050
96-D-470	Environmental Monitoring Laboratory, Savannah River, Aiken, South Carolina	30,280	0	0	0 a/	2,500	27,780
96-D-471	CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina	45,000	0	0	1,500	8,541	34,959
96-D-473	Health Physics Site Support Facility, Savannah River, Aiken, South Carolina	17,200	0	0	0 a/	2,000	15,200
95-E-600	Hazardous Materials Management & Emergency Response Training Center, Richland, Washington	29,900	0	7,000	15,000	7,900	0
95-D-155	Upgrade Site Road Infrastructure, Savannah River Site, Aiken, South Carolina	10,500	0	750	2,900	4,137	2,713

a/ Reflects FY 1996 Conference Mark.

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SITE OPERATIONS - DEFENSE - CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY (con't)

Project No.	Project Title	TEC	Previous Obligations	FY 1995 Adjusted	FY 1996 Amended	FY 1997 Request	Remaining Balance
95-D-156	Radio Trunking System, Savannah River Site, Aiken, South Carolina	8,100	0	2,100	6,000	0	0
95-D-157	D-Area Powerhouse Life Extension, Savannah River, SC	71,500	0	4,000 a/	0	0	67,500
95-D-454	324 Facility Compliance/Renovation, Richland Washington	5,000	0	1,500 a/	2,500	0	1,000
94-D-401	Emergency Response Facility, Idaho National Engineering Laboratory, Idaho	11,430	590	5,219	5,074	547	0
94-D-412	300 Area Process Sewer Piping System Upgrade, Richland, Washington	9,900	1,100	7,800	0 a/	0	1,000
94-D-415	Idaho National Engineering Laboratory Medical Facility, Idaho National Engineering Laboratory, Idaho	9,121	600	4,920	1,801	0	1,800
93-D-147	Domestic Water System Upgrade, Phase I and II Savannah River Site, Aiken, South Carolina	27,150	8,720	11,300	7,130	0	0
93-D-152	Enviornmental Modification for Production Facilities, Savannah River, SC	24,900	22,000	2,900	0	0	0

a/ Use of prior year funds to offset FY 1996 ($594,000)
b/ Use of prior year funds to offset FY 1996 ($4,000,000)
c/ Use of prior year funds ($1,630,000).

SITE OPERATIONS - DEFENSE - CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY (con't)

Project No.	Project Title	TEC	Previous Obligations	FY 1995 Adjusted	FY 1996 Amended	FY 1997 Request	Remaining Balance
93-D-172	Idaho National Engineering Laboratory Electrical Upgrade, Idaho National Engineering Laboratory, Idaho	16,321	9,020	7,177 a/	0	0	124
93-D-184	325 Facility Compliance/Renovation, Pacific Northwest Laboratory, Richland, Washington	6,000	5,000	1,000	0	0	0
92-D-143	Health Protection Instrument Calibration Facility, Savannah River, SC	21,400	18,400	3,000	0	0	0
92-D-150	Operations Support Facilities, Savannah River, SC	35,000	33,000	2,000	0	0	0
92-D-153	Engineering Support Facility, Savannah River, SC	20,217	17,017	3,200	0	0	0
92-D-181	Idaho National Engineering Laboratory Fire and Life Safety Improvements, Idaho National Engineering Laboratory, Idaho	27,083	14,200	6,000	6,883	0	0
90-D-149	Plantwide Fire Proterction, Savannah River, SC	420,000	158,735	5,000	0	0	256,265
TOTAL, Project Funding-Defense		N/A	$ 288,382	$ 74,866	$ 49,827	$ 32,415	$411,391

a/ Use of current year funds for productivity savings ($623,000), use of prior year funds for uncosted reduction ($377,000), and FY 1996 offset ($800,000).

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SITE OPERATIONS - DEFENSE - CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY (con't)

	TEC	Previous Approp.	FY 1995 Approp.	FY 1996 Approp.	FY 1997 Request	Acceptance Date
Major Items of Equipment:						
1. Central Computer Fac. Transaction Service (SRS-I-0002-0000)	$ 2,500	$ 0	$ 0	$ 2,500	$ 0	04/1996
2. Central Computer Fac. Computer Upgrade (SRS-I-0003-0000)	4,500	0	0	4,500	0	01/1996
3. Office Information System Upgrade	3,500	0	3,500	0	0	01/1995
4. CADD Equipment for Engineering	1,121	0	1,121	0	0	08/1995

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
ENVIRONMENTAL MANAGEMENT
PROJECT DATA SHEETS

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

OFFICE OF SITE OPERATIONS
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Electrical Distribution Upgrade, Idaho National Engineering Laboratory, Idaho

2a. Project No.: 96-D-461 ADS# ID-6318-0
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Quarter FY 1996

3b. A-E Work (Titles I and II) Duration: 14 months

4a. Date Physical Construction Starts: 4th Quarter FY 1997

4b. Date Construction Ends: 1st Quarter FY 1999

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $12,930
Total Project Cost (TPC) -- $13,726

6. Current Cost Estimate: a/
TEC -- $10,879
TPC -- $11,676

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1996	$ 1,039	$ 0	$ 1,039	$ 1,039
1997	6,790	0	6,790	2,734
1998	3,050	0	3,050	6,033
1999	0	0	0	1,073

a/ The TEC and TPC has been reduced (TEC $14,000,000 to $10,879,000 / TPC $10,879,000 to $11,676,000) under an approved baseline change proposal. The reductions are a result of 1) FY 1996 indirect cost reductions associated with the Nuclear Material and Facility Stabilization productivity initiative and 2) overall reductions to costs associated with project and construction management activities, and reductions in prioritized workscope.

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1. Title and Location of Project: Electrical Distribution Upgrade, Idaho
Idaho National Engineering Laboratory, Idaho

2a. Project No.: 96-D-461 ADS# ID-6318-0
2b. Construction Funded

8. Project Description, Justification and Scope

The Idaho National Engineering Laboratory's (INEL) Electrical Distribution Upgrade provides for the planning, management, design, procurement, and construction activities to upgrade portions of the INEL electrical distribution system which provides numerous users with reliable electrical power. This project is necessary to provide reliability and maintainability of the electrical distribution system.

The upgrade consists of 1) resolution and correction of code and standard deficiencies, and 2) correction of age, deterioration and obsolescence conditions. The extent of scope of this project will start at the secondary connections of the 138 kilovolts (kV) step down transformers and go to the service disconnects at the utilization area. The scope will include but not be limited to such things as conductor deterioration, conductor termination, electrical clearance and sag, pole and pole hardware general condition, transformer condition, transform hardware and grounding condition, general electrical grounding, transformer pad and electrical duct deterioration, substation interior and fencing requirements, minimum required protective relaying, fusing and circuit breaker protection, and any other unsafe, worn out, or insufficient condition found whether governed by a code requirement or not. These items have been identified as major items of scope; however, additional deficiencies identified during studies and design efforts will be prioritized and included in this project as funding allows.

This project will upgrade portions of the electrical distribution system which supplies electrical power to numerous users at the INEL including nationally recognized energy research programs, nuclear reactor test research programs, radioactive waste reduction/processing facilities, and associated safeguard and security facilities throughout the 900 square miles of the INEL.

The INEL electrical system comprises 65 miles of overhead transmission lines and seven substations. Each of these substations feeds users through electrical distribution systems. These systems include substation equipment, overhead/underground distribution lines, distribution equipment, and service entrance drops. Most of the system was installed circa 1950 and requires upgrades to maintain its reliability and maintainability. The INEL Electrical Upgrade (FY 1993) project addresses the upgrades required on the 138 kV transmission system. This project addresses the distribution system on the load side of the 138 kV step down transformer to the service disconnects at the utilization area.

The electrical distribution system has operated reliably and an excellent safety record has been maintained over the past years. However, safety codes deemed applicable to the INEL have changed as have requirements and applicable codes enforced at the time of construction. This has resulted in numerous violations of the present design with these safety codes. It is necessary that the system changes be made, so that existing codes and standards can be adhered to and a high level of safety and reliability be maintained.

If deficiencies are not corrected, it is expected that the system will degrade below acceptable reliability and maintenance levels, as various system components, which already exceed their design life, continue to age. Routine system maintenance is becoming increasingly difficult and expensive to accomplish. Spare parts from many of the system components are no longer available from the manufacturer or are difficult to obtain due to obsolescence. Spare parts used for repairs are often obtained by cannibalizing standby equipment or rebuilding failed components. This leads to increased system downtime and the potential for recurring failure, since these parts have the same age associated problems.

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1. Title and Location of Project: Electrical Distribution Upgrade, Idaho
Idaho National Engineering Laboratory, Idaho

2a. Project No.: 96-D-461 ADS# ID-6318-0
2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 2,319
1. Engineering design and inspection at approximately 11 percent of construction costs (item c)	$ 701	
2. Construction management costs at approximately 20 percent of construction costs (item c)	882	
3. Project management at 13 percent of construction costs (item c)	736	
b. Land and land rights		0
c. Construction costs		5,874
1. Improvements to land	0	
2. Buildings	0	
3. Other structures	0	
4. Utilities	5,874	
5. Special facilities	0	
d. Standard equipment		641
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		0
Subtotal		$ 8,834
h. Contingency at approximately 22 percent of above costs		2,045
i. Total line item cost (Section 12.a.1.(a))		$ 10,879
j. Non-Federal contribution		0
Net Federal total estimated cost (TEC)		$ 10,879

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1. Title and Location of Project:	Electrical Distribution Upgrade, Idaho Idaho National Engineering Laboratory, Idaho	2a. Project No.: 96-D-461 ADS# ID-6318-0 2b. Construction Funded

10. Method of Performance

The Department of Energy Idaho Operations Office (DOE-ID) shall be responsible for implementation of the project, including selection of principal contractors and approval of specified procurement actions. DOE-ID project management shall be performed by Construction Management, Office of Program Execution. Administrative and other project support shall be furnished to the project on a matrix basis by the DOE-ID organization.

The Lockheed Idaho Technologies Company (LITCO) shall be the operating contractor responsible for the development of the project's technical requirements, completion of the Architectural and Engineering Design, review and management of the engineering and construction activities, procurement of selected equipment, construction subcontracting, checkout of systems, and maintenance of the completed project. The LITCO project management and construction management shall be performed by the Site Services Organization as required to complete the project in a timely, safe, and cost effective manner.

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1. Title and Location of Project: Electrical Distribution Upgrade, Idaho
Idaho National Engineering Laboratory, Idaho

2a. Project No.: 96-D-461 ADS# ID-6318-0
2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	Total
a. Total project costs							
1. Total facility costs							
(a) Line item (Section 10.i.)	$ 0	$ 0	$ 1,039	$ 2,734	$ 6,033	$ 1,073	$ 10,879
(b) Operating expense funded equipment	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	$ 0	$ 0	$ 1,039	$ 2,734	$ 6,033	$ 1,073	$ 10,879
2. Other project costs							
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	350	0	0	0	0	0	350
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0	0
(d) NEPA documentation costs	0		0	0	0	0	0
(e) Other project-related costs		30	36	72	178	131	447
Total other project costs	$ 350	$ 30	$ 36	$ 72	$ 178	$ 131	$ 797
Total project cost	$ 350	$ 30	$ 1,075	$ 2,806	$ 6,211	$ 1,204	$ 11,676
(f) Non-Federal contribution	0	$ 0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 350	$ 30	$ 1,075	$ 2,806	$ 6,211	$ 1,204	$ 11,676

b. Related annual funding (estimated life of project--20 to 40 years)	
1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	0
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic efforts in the facility	0
5. GPP or other construction related to programmatic effort in the facility	0
6. Utility costs	0
7. Other costs	0
Total other related annual funding	$ 0

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1. Title and Location of Project:	Electrical Distribution Upgrade, Idaho Idaho National Engineering Laboratory, Idaho	2a. Project No.: 96-D-461 ADS# ID-6318-0 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
   1. Total facility costs--Narrative not required.
   2. Other project costs
      (a) R&D necessary to complete construction--Narrative not required.
      (b) Conceptual design costs--$350,000 was required for the completion of field inspections and conceptual design.

b. Other related annual funding
   1. Annual facility operating costs--Not available at this time.
   2. Programmatic operating expense directly related to the facility--None.
   3. Capital equipment not related to construction but related to the programmatic effort in the facility--None.
   4. Maintenance, repair, GPP, or other construction related to the programmatic effort in the facility--None.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

OFFICE OF SITE OPERATIONS
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Environmental Monitoring Laboratory, Savannah River, Aiken, South Carolina

2a. Project No.: 96-D-470 ADS# SR-6985-23
2b. Construction Funded

3a. Date A-E Work Initiated: 2nd Quarter FY 1997

3b. A-E Work (Titles I & II) Duration: 15 months

5. Previous Cost Estimate
Total Estimated Cost (TEC) -- $33,000
Total Project Cost (TPC) -- $36,000

4a. Date Physical Construction Starts: 4th Quarter FY 1998

4b. Date Construction Ends: 2nd Quarter FY 2000 b/

6. Current Cost Estimate: a/
TEC -- $30,280
TPC -- $33,690

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1997	$ 2,500	$ 0	$ 2,500	$ 1,850
1998	5,200	0	5,200	4,620
1999	18,300	0	18,300	18,550
2000	4,280	0	4,280	5,260

a/ The TEC and TPC decreased as a result of Savannah River's mission change from a defense production site to an environmental site for cleanup and deactivation. Baseline change proposal 96-D-470/002 documents the change.
b/ Completion date changed from 1st Quarter 1999 to 2nd Quarter 2000 due to a lack of Congressional funding authorization to begin work in FY 1996.

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1. Title and Location of Project:	Environmental Monitoring Laboratory, Savannah River, Aiken, South Carolina	2a. Project No.: 96-D-470 2b. Construction Funded	ADS# SR-6985-23

8. Project Description, Justification and Scope

This project will design, build, and equip a new Environmental Monitoring Laboratory (EML) and support facilities at the Savannah River Site (SRS). The new facility will provide continued full compliance with the Occupational Safety and Health Administration (OSHA) and environmental protection requirements as detailed in federal and state regulations and Department of Energy (DOE) Orders. The EML will house the equipment and personnel to support the site environmental sampling, radioanalytical counting, water quality/groundwater assessments, and environmental radiochemistry. The new laboratory and support facilities will include laboratory modules, mechanical and electrical support services, storage space, and offices for technical and administrative personnel. The design of the laboratory will accommodate future growth by providing expansion capability for additional laboratory modules and associated support features.

The laboratory will be a facility of approximately 54,000 square feet and will be divided into two major functional areas: 1) laboratory and 2) office and administration. The laboratory section (approximately 24,000 square feet) includes the sampling rooms, water quality/groundwater laboratory modules, radiochemistry laboratory modules, radioanalytical counting rooms, and storage rooms. In addition, a service basement of approximately 15,000 square feet will be provided to include a boiler room, cylinder storage room, Radiological Buffer Area (RBA) treatment system, laboratory exhausthood duct system, flammable storage room and vehicle circulation space. The office and administration area (approximately 15,000 square feet) includes space for management and staff, data management, publication rooms, and record storage. The facility size is reduced from 78,600 square feet to approximately 54,000 square feet. Facility size reductions were experienced in the administration area, laboratory area, and the service basement.

The support facilities include the HP Complex Wastewater Treatment Facility (approximately 1,800 square feet) and an Acid/Base/Organic Storage Facility (approximately 1,200 square feet). The HP Complex Wastewater Treatment Facility will house the treatment systems required for the EML and the Health Physics Site Support Facility (96-D-473).

The support laboratories operated by the Environmental Monitoring Section (EMS) of the Environmental Protection Department currently occupy facilities which are at the end of their life cycles. General deterioration is evident and catastrophic ventilation system failures have occurred and are expected to become prevalent within the next ten years creating Occupational Safety and Health Administration (OSHA) concerns. In addition, current operations are being performed in facilities that have the following design deficiencies: 1) facilities do not provide neutralization capabilities for acidic waste water; 2) facilities cannot accommodate large amounts of automated instrumentation and computers; 3) facilities do not allow adequate sample segregation. Facility renovation studies were conducted identifying that a significant cost would be experienced to renovate facilities over forty years old. Meanwhile, the EMS mission and regulatory requirements continue to grow.

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1. Title and Location of Project:	Environmental Monitoring Laboratory, Savannah River, Aiken, South Carolina	2a. Project No.: 96-D-470 2b. Construction Funded	ADS# SR-6985-23

8. Project Description, Justification of Scope (continued)

This project will provide a facility that will be an essential part of safe operation of the site, and will allow the site to remain in full compliance with Federal and state regulations and DOE Orders 5400.1, General Environmental Protection Program, and 5400.4, Radiation Protection of the Public and the Environment. Environmental Monitoring Laboratory performed environmental analysis in support of the following: Canyon Operations, Reactor and Fuel Basin Storage facilities, Tritium programs, Nuclear Material Stabilization programs, and Defense Waste Processing Facility (DWPF), tank farm operations, Consolidated Incinerator Facility and remediation projects.

The new facility will be a self-supporting facility as part of the Health Protection Complex in B-Area of the SRS. Failure to authorize the project will result in the loss of critical ventilation systems due to continued corrosion and perpetuate overcrowded, inefficient conditions for performing environmental monitoring functions. Successful completion of this project will provide adequate facilities to meet current and future sample analysis determination and personnel space requirements. Existing facility renovation is not practical nor cost effective. Renovation is not a viable option since the special provisions to permit EMS mission support would extend the renovation schedule to as long as ten years with a projected cost of approximately $45,000,000.

The gross annual operating cost for this facility is estimated to be $1,970,000. This includes operations, building maintenance, equipment repair, and utility costs.

FY 1997 funds will be used initiate design.

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1. Title and Location of Project:	Environmental Monitoring Laboratory, Savannah River, Aiken, South Carolina	2a. Project No.: 96-D-470 2b. Construction Funded	ADS# SR-6985-23

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 3,447
1. Engineering design and inspection at approximately 13.4 percent of construction costs (item c) (Design Drawings, and Specifications: $1,802)	$ 2,140	
2. Construction management costs at approximately 3.9 percent of construction costs (item c)	632	
3. Project management at 4.2 percent of construction costs (item c)	675	
b. Land and land rights		0
c. Construction costs		16,003
1. Improvements to land	55	
2. Building modifications	13,256	
3. Other structures	115	
4. Utilities	1,905	
5. Special facilities	672	
d. Standard equipment		1,988
e. Major computer items		4,969
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout and acceptance		207
Subtotal		$ 26,614
h. Contingency at approximately 13.8 percent of above costs		3,666
i. Total line item cost (Section 12.a.1.(a))		$ 30,280
j. Non-Federal contribution		0
Net Federal total estimated cost (TEC)		$ 30,280

The Department of Energy (DOE) February 1996 escalation rates (percent per year) used for this estimate are as follows:

Fiscal Year	1997	1998	1999	2000
Escalation	2.7	2.8	3.0	3.0

The above estimate includes $3,123,000 for escalation. Estimate is based on completed conceptual design.

10. Method of Performance

This project will be managed by the Management and Operating (M&O) contractor. To the maximum extent possible, construction and procurement shall be accomplished by fixed price subcontracts awarded on the basis of competitive bidding.

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
a. Total project costs							
1. Total facility costs							
(a) Line item (Section 10.i.)	$ 0	$ 1,850	$ 4,620	$ 18,550	$ 5,260	$ 0	$ 30,280
(b) Operating expense funded equipment	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	$ 0	$ 1,850	$ 4,620	$ 18,550	$ 5,260	$ 0	$ 30,280
2. Other project costs							
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	855	0	0	0	0	0	855
(c) Decontamination and decommissioning (D&D)	0	0	0	0	0	0	0
(d) NEPA documentation costs	90	0	0	0	0	0	90
(e) Other project-related costs	295	450	430	400	600	290	2,465
Total other project costs	$ 1,240	$ 450	$ 430	$ 400	$ 600	$ 290	$ 3,410
Total project cost	$ 1,240	$ 2,300	$ 5,050	$ 18,950	$ 5,860	$ 290	$ 33,690
(f) Non-Federal contribution	0	0	0	0	0	0	0
(g) Net Federal total project cost (TPC)	$ 1,240	$ 2,300	$ 5,050	$ 18,950	$ 5,860	$ 290	$ 33,690

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11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--40 years)

1.	Facility operating costs	$ 1,230
2.	Facility maintenance and repair costs	250
3.	Programmatic operating expenses directly related to the facility	0
4.	Capital equipment not related to construction but related to the programmatic effort in the facility	0
5.	GPP or other construction related to programmatic effort in the facility	0
6.	Utility costs	100
7.	Other costs	390
	Total related annual funding	$ 1,970

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding
1. Total facility costs
(a) Line item--Narrative not required.
(b) Expense-funded equipment--None.
(c) Inventories--None.
2. Other project costs
(a) R&D necessary to complete construction--None.
(b) Conceptual design--Includes $855,000 spent to prepare a Functional Design Criteria, scope of work, preliminary drawings, conceptual estimate, conceptual design report, and a Task Order Proposal Request for A/E services.
(c) Decontamination and decommissioning (D&D)--None.
(d) NEPA documentation costs--$90,000 - Includes $40,000 for documentation and $50,000 for site characterization.
(e) Other project related costs--$2,465,000 includes startup, equipment setup/checkout, training, and procedure safety documentation preparation.
(f) Non-Federal contribution--None.

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding

1. Facility operating costs--$1,230,000 includes salaries, benefits, overhead staffing, janitorial services and supplies.
2. Facility maintenance and repair costs--$250,000 includes repair of equipment, HVAC, etc.
3. Programmatic operating expenses directly related to the facility--No incremental staffing required.
4. Capital equipment cost not related to the programmatic effort--None.
5. GPP or other construction related to the programmatic effort--None.
6. Utility costs--$100,000 includes electric power.
7. Other costs--$390,000 includes HP Complex Wastewater Treatment Facility staffing, equipment repair, and supplies.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

OFFICE OF SITE OPERATIONS
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina

2a. Project No. 96-D-471 ADS# SR-6985-14
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 1st Qtr. FY 1996

3b. A-E Work (Titles I & II) Duration: Various

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $45,000
Total Project Cost (TPC) -- $58,500

4a. Date Physical Construction Starts: Various (Installation Initiated: 1st Qtr. FY 1996)

4b. Date Construction Ends: Various

6. Current Cost Estimate:
TEC -- $45,000
TPC -- $58,500

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1996	$ 1,500	$ 0	$ 1,500	$ 1,500
1997	8,541	0	8,541	8,000
1998	8,500	0	8,500	8,000
1999	8,000	0	8,000	7,500
2000	7,500	0	7,500	8,000
2001	10,959	0	10,959	9,500
2002	0	0	0	2,500

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1. Title and Location of Project:	CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina	2a. Project Number: 96-D-471 2b. Construction Funded

8. Project Description, Justification and Scope

DRIVERS

Current legislation bans CFC production by December 1995. Continued CFC use is allowed under strict maintenance and operation regimens. However, the free market pricing mechanisms and DOE policy severely discourage procurement of replacement CFCs. In order to continue operations, the DOE must eventually end its reliance upon CFCs for all cooling applications.

CFC MISSION

Due to the regulatory requirements as well as the related impending CFC shortages, it is imperative that action be taken to preserve EM mission capability by instituting CFC management for conserving this limited resource pending replacement by non-CFCs, to reduce the continued cost of operation through increased energy efficiency, and to protect the environment from further damage. Ultimately, this program will eliminate the use of ozone-depleting CFCs to ensure compliance with the EPA Stratospheric Ozone Protection Amendment of the Clean Air Act.

This project provides for the elimination of the use of ozone depleting CFCs to ensure compliance with the EPA stratospheric ozone protection amendment of the Clean Air Act through construction and/or modifications as site upgrades and replacement, utilities, and minor structures required for activities at the Savannah River Site. A project of this type cannot be fully detailed in advance due to changing mission requirements, unexpected catastrophic equipment failures, environmental compliance schedules, etc. The subprojects identified for this fiscal year are examples of chillers under consideration. This approach is based upon similar endeavors by other federal agencies, such as the General Services Administration. In general, the estimated funding for each location and listed subprojects is preliminary in nature and primarily indicative of the size of the subproject and the relative magnitude of the requirements. It should be noted also that the continuing study of requirements will result in changes in scope of some of the subprojects. Other subprojects will be added with the necessary postponement of some of those now included, dependent upon conditions or situations not now apparent, but principally limited to those conditions stemming from catastrophic equipment failures and environmental compliance requirements.

Refrigerant and cooling requirements are the principal use for ozone-depleting substances (CFCs) at the SRS (with Halon fire suppression and specialized solvent cleaning operations comprising the remaining usage). The program will eliminate the use of CFCs used in refrigeration and cooling in chillers, direct expansion air conditioners, process coolers, and other refrigeration equipment. (Halon and solvent cleaning usage is already being addressed by site waste minimization activities and the use of non-CFC based fire protection methodologies.) Small window and wall slot air conditioners and other equipment with refrigerant charges of 10 pounds or less will be replaced when leaks are detected or at the end of their useful life with new equipment utilizing non-CFC refrigerants, and are not addressed under this program. The ultimate disposal or destruction of CFC refrigerants is not considered as part of this effort.

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8. Project Description, Justification and Scope (continued)

The principal CFC refrigerants found on the SRS include R-11, R-12, R-113, R-114, R-502, and R-503. Replacement non-CFC refrigerants/systems are already commercially available, and no development activity is required. However, since some non-CFC refrigerant replacements are generally of a higher toxicity, additional ventilation and monitoring systems may be required for some of the modified systems to comply with industry standards.

Aging control systems may also require upgrade in order to interface with modern replacement systems. Asbestos and other potential contaminants found during equipment replacement/retrofit may require abatement, containment, or remediation. In modifying existing systems, required utilities and distribution connections and demolition and disposal may be necessary for non-salvageable components and systems.

The following legislative actions have been considered in the formulation of the CFC Heating, Ventilation, and Air Conditioning (HVAC) Chiller Retrofit Project:

- Title VI of the Clean Air Act, as amended, which mandates a curtailment of ozone-depleting substance production.
- Title III of the Clean Air Act, as amended, waives the Government's sovereign immunity under Section 302(e) and subjects "...any agency, department, or instrumentality of the United States and any officer, agent, or employee thereof" to the provisions of the Act. The Federal Enforcement provisions outlined in Section 113 include civil and criminal penalties for knowingly violating the provisions.
- The *Refrigerant Recycling Rule* as given in 58 FR 28660 allows a maximum leakage of 15% per annum of a refrigerant system's charge of CFC working fluid.
- Title 40 of the Federal Regulations addresses air pollution in general. The EPA final rule (40 CFR 82, "Production and Consumption Controls," 12/10/93) accelerates the phase-out of Class I substances.
- Executive Order 12856 of 1993 addresses federal compliance with right-to-know laws and pollution prevention requirements, and stipulates 50% reduction in leakage/emission of Emergency Planning and Community Right to Know Act chemicals by December 31, 1991, including some CFCs.
- The National Pollution Prevention Act of 1990.
- Executive Order 12843 addresses procurement policies for ozone-depleting substances.

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1. Title and Location of Project:	CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina	2a. Project Number: 96-D-471 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

The Chlorofluorocarbon (CFC) HVAC-Chiller Retrofit Project has been planned to provide a consistent prioritization method for the application of scarce capital resources to address the replacement or conversion of equipment reliant upon CFC refrigerants. The project will utilize a consistent strategy for assessment of requirements to maintain credibility, and a funding approach based on technical and budget priorities to systematically reduce risk and insult to the ozone and environment while protecting worker and public safety and maintaining critical program activities.

The subprojects identified in this section (new starts) represent the highest priority efforts given the current equipment conditions, site mission status, environmental and/or regulatory compliance information, etc. However, site requirements, unexpected regulatory or safety driven issues, or equipment failures may result in a re-prioritization of the activities proposed under this project. This re-prioritization may result in subproject(s) being substituted for those identified as New Starts. Subproject additions/substitutions/deletions will be controlled and tracked through the Baseline Change Control (BCC) process. Subproject changes will be discretely identified once approved through BCC.

The following is a brief description and justification for each of the chiller subprojects proposed for FY 1997 funding.

FY 1997 Proposed Projects (New Starts)

Subproject 03: Tritium Area Chilled Water Upgrades, Phase II

TEC	Previous	FY 1997	Construction Start - Completion Dates
$7,697	$ 0	$7,697	2nd. Qtr. FY 1997 - 3rd. Qtr. FY 1998

Retrofit two 658-ton chillers in Bldg. 249-H. Replacement of one 198-ton chiller in Bldg. 238-1H, two 191-ton chillers in Bldg. 234-4H, one 445-ton chiller in Bldg. 234-H, and two 300-ton chillers and one 115-ton chiller in Bldg 234-H. The replacement will be a central chiller plant providing 1350 tons of cooling.

Subproject 04: F-Canyon Chilled Water Upgrades

TEC	Previous	FY 1997	Construction Start - Completion Dates
$658	$ 0	$ 658	4th. Qtr. FY 1997 - 4th. Qtr. FY 1998

1. Title and Location of Project: CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina	2a. Project Number: 96-D-471 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

Replacement of two 850-ton chillers in Bldg. 221-F,. Units 1 and 2.

Subproject 01: 777-10A Chilled Water Upgrades

TEC	Previous	FY 1997	Construction Start - Completion Dates
$486	$ 300	$ 186	1st. Qtr. FY 1997 - 4th Qtr. FY 1997

Replacement/retrofit of one 250-ton chiller in Bldg. 777-10A

FY 1996 Projects (New Starts)

Subproject 01: 777-10A Chilled Water Upgrades

TEC	Previous	FY 1996	Construction Start - Completion Dates
$ 486	$ 0	$ 300	1st. Qtr. FY 1997 - 4th Qtr. FY 1997

Replacement/retrofit of one 250-ton chiller in Bldg. 777-10A

Subproject 02: Tritium Area Chilled Water Upgrades, Phase I

TEC	Previous	FY 1996	Construction Start - Completion Dates
$1,200	$ 0	$1,200	4th Qtr. FY 1996 -3rd. Qtr. FY 1997

Replacement of one 445-ton chiller in Bldg. 234-H which is currently inoperable.

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1. Title and Location of Project:	CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina	2a. Project Number: 96-D-471 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

EXECUTION CONSIDERATIONS

The two principal options for addressing existing CFC dependent chiller/HVAC systems are: 1) conversion (retrofits) and 2) replacement.

- Conversion (retrofit) of the equipment to use alternative non-ozone depleting refrigerants such as Hydrochlorofluorocarbon (HCFC) or Hydrofluorocarbon (HFC). Conversion needs to consider the impact on the materials utilized in chiller construction (e.g., corrosive effect of alternative refrigerants upon chiller seals) and the impact on equipment performance.

- Replacement of the equipment with new non-CFC dependent equipment.

8. Project Description, Justification and Scope (continued)

Consideration/evaluation of the conversion versus replacement decision include:

Age of the chillers;
Performance of the existing chillers; Machine capability; Relative efficiency, maintainability, and reliability;
Life cycle cost analyses;
Spare part availability;
Current system capacity margin, and future growth requirements; System impact on the site and facility mission, and mission urgency; and
Accessibility issues and structural modifications that may be necessary to accommodate a replacement.

In summary, as equipment approaches the end of its useful life, replacement may appear to be an obvious choice. However, the decision for replacement will not be made until installation costs have been adequately addressed (i.e., removal of existing equipment, accessibility for the placement of new equipment, equipment tie-in points, and new support equipment). The final decision to convert or replace can only be made following a case-by-case engineering evaluation which considers all of the above factors. Private industry involvement and practices will be employed to the greatest extent possible.

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1. Title and Location of Project: CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina

2a. Project Number: 96-D-471
2b. Construction Funded

9. Details of Cost Estimate

This cost estimate is based upon direct field inspection data coupled with parametric cost data and completed conceptual studies and designs when available.

		Item Cost	Total Cost
a.	Design and management costs		$ 3,620
	1. Engineering design and inspection at approximately 7 percent of construction costs (item c)	$ 2,192	
	2. Construction management costs	0	
	3. Project management at 4 percent of construction costs (item c)	1,428	
b.	Land and land rights		0
c.	Construction costs		32,263
	1. Improvements to land	0	
	2. Buildings	0	
	3. Electrical and instrumentation	0	
	4. Other structures	0	
	5. Utilities	0	
	6. Special facilities	32,263	
d.	Standard equipment		0
e.	Major computer items		0
f.	Removal cost less salvage		0
g.	Design and project liaison, testing, checkout and acceptance		0
	Subtotal		$ 35,883
h.	Contingency at approximately 25 percent of above costs		9,117
i.	Total line item cost (Section 12.a.1.(a))		$ 45,000
j.	Non-Federal contribution		0
	Net Federal total estimated cost (TEC)		$ 45,000

The DOE escalation rates (percent per year) used for this estimate are as follows:

Fiscal Year	1996	1997	1998	1999	2000	2001
Escalation	3.2	2.7	2.8	3.0	3.0	3.0

The above estimate includes $2,433,257 for escalation.

1. Title and Location of Project: CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina

2a. Project Number: 96-D-471
2b. Construction Funded

10. Method of Performance

Installation of replacement equipment and system conversions (retrofits) will be performed to the greatest extent feasible through competitive solicitations or competitively selected service contracts. Procurement will be accomplished to the maximum extent practical through competitively bid solicitations and contracts.

11. Schedule of Project Costs and Other Related Cost Requirements

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	Total
a. Total Project Costs								
1. Total Facility Costs	$ 1,500	$ 8,000	$ 8,000	$ 7,500	$ 8,000	$ 9,500	$ 2,500	$ 45,000
(a) Line-Item (Section 10.i.)	0	0	0	0	0	0	0	0
(b) Operation Expense Funded Equipment	0	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0	0
Total Facility Cost (Federal and Non-Federal)	$ 1,500	$ 8,000	$ 8,000	$ 7,500	$ 8,000	$ 9,500	$ 2,500	$ 45,000
2. Other Project Costs								
(a) R&D Necessary to Complete Project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual Design Costs	0	0	0	0	0	0	0	0
(c) Decontamination & Decommissioning (D&D)	0	0	0	0	0	0	0	0
(d) NEPA Documentation Costs	0	0	0	0	0	0	0	0
(e) Other Project-Related Costs	1,417	1,978	2,550	2,400	2,250	2,905	0	13,500
Total Other Project Costs	$ 1,417	$ 1,978	$ 2,550	$ 2,400	$ 2,250	$ 2,905	$ 0	13,500
Total Project Cost	$ 2,917	$ 9,978	$ 10,550	$ 9,900	$ 10,250	$ 12,405	$ 2,500	$ 58,500
(f) Non-Federal Contribution	0	0	0	0	0	0	0	0
(g) Net Federal Total Project Cost (TPC)	$ 2,917	$ 9,978	$ 10,550	$ 9,900	$ 10,250	$ 12,405	$ 2,500	$ 58,500

1. Title and Location of Project:	CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina	2a. Project Number: 96-D-471 2b. Construction Funded

11. Schedule of Project Costs and Other Related Cost Requirements (continued)

b. Related Annual Funding (estimated life of project--)

1.	Facility Operating Costs	$ 0
2.	Facility Maintenance and Repair Costs	0
3.	Programmatic operating expenses directly related to the facility	0
4.	Capital equipment not related to construction but related to the programmatic effort in the facility	0
5.	GPP or other construction related to the programmatic effort in the facility	0
6.	Utility Costs	0
7.	Other Costs	0
	Total Related Annual Funding	$ 0

12. Narrative Explanation of Total Project Costs and Other Related Funding Requirements

a. Total Project Funding
   1. Total Facility Costs
      (a) Line Item--construction line item costs for design, procurement, and construction.
      (b) Expense Funded Equipment--None.
      (c) Inventories--None.
   2. Other Project Costs
      (a) R&D Necessary to Complete Construction--None.
      (b) Conceptual Design--None.
      (c) Decontamination & Decommissioning (D&D)--No narrative required.
      (d) NEPA Documentation--No narrative required.
      (e) Other Project Related Costs--$13,500,000 calculated as percentage of TEC.
      (f) Non-Federal Contribution--None.

b. Related annual funding
   Annual operating cost will be required as a result of improved system reliability and higher efficiencies.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

OFFICE OF SITE OPERATIONS
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Health Physics Site Support Facility, Savannah River Site, Aiken, South Carolina

2a. Project No.: 96-D-473 ADS# SR-6985-20
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 2nd Qtr. FY 1997

3b. A-E Work (Titles I & II) Duration: 14 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $27,800
Total Project Cost (TPC) -- $31,500

4a. Date Physical Construction Starts: 3rd Qtr. FY 1998

4b. Date construction ends: 2nd Qtr. FY 2000

6. Current Cost Estimate:
TEC -- $17,200 a/
TPC -- $19,500

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1997	$ 2,000	$ 0	$ 2,000	$ 1,400
1998	4,000	0	4,000	3,800
1999	10,000	0	10,000	10,800
2000	1,200	0	1,200	1,200

a/ The TEC and TPC have decreased~~, and the construction end date has changed from the 3rd Qtr. FY 2000 to the 2nd Qtr. FY 1999~~, as a result of the Savannah River mission change from a defense production site to a surplus site to be deactivated.

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1. Title and Location of Project: Health Physics Site Support Facility, Savannah River Site, Aiken, South Carolina	2a. Project No.: 96-D-473 2b. Construction Funded	ADS# SR-6985-20

8. Project Description, Justification and Scope

This project will design, build, and equip a new Health Physics Site Support Facility at the Savannah River Site (SRS). The new facility will provide for full compliance with radiation protection requirements of the Department of Energy (DOE) Orders. Health Physics Technology laboratory and processing facilities determine, evaluate, and document personnel exposures to radioactive materials. The new laboratory facilities will include laboratory modules for sample receipt, sample preparation, counting for radioactivity, thermoluminescent dosimeter processing, data evaluation, mechanical and electrical support services, storage space, and offices for technical and administrative personnel. The technology center will be a facility of approximately 45,000 square feet and will be divided into two major functional areas: the in-vitro laboratory and dosimetry processing within the office and administration section. The in-vitro laboratory (approximately 15,000 square feet) includes the bioassay laboratories, storage and receiving rooms, and analytical offices. Dosimetry processing, located within the administration areas, houses dosimetry receiving, staging, and processing rooms; record and file storage rooms; and support offices. The office and administration area provides space for management, staff and associated support requirements. The Dosimetry and Administrative areas are approximately 20,000 square feet. In addition, a service basement of approximately 10,000 square feet will be provided below the in-vitro laboratory to house wash-down facilities for the hood exhaust duct and mechanical fans.

FY 1997 funding will be used to initiate design work.

The Health Protection (HP) Department technical support laboratories and offices still occupy essentially the same facilities that were designed and constructed in the early 1950's, with no significant increase in facility floor space. These facilities were originally designed for a limited sampling program for a site population of less than 10,000. With the additional number of site and Health Protection employees, increases in site monitoring requirements, and general deterioration of the current laboratories, the existing facilities can no longer adequately support the health protection needs of the site.

This project will provide a facility that will be an essential part of safe operation of the site, and which will allow the site to be in full compliance with DOE Order 5480.11 (Radiological Protection for Occupational Workers) and DOE Radiological Control Manual DOE/EH-0256T. Health Protection performs bioassary and dosimetry analysis on workers supporting the following: High and Low-Level Waste Operations, Reactor and Fuel Basin Storage, Tritium Programs, and Nuclear Material Stabilization Facilities.

Existing facility renovation or expansion is not practical nor cost effective. Renovation would be ineffective since the existing facilities do not contain sufficient space required to perform the types and quantity of analyses required. Facility expansion is not practical since appropriate space adjacent to the current facility is not available. No other suitable space is currently available onsite. Due to potential site mission changes and population shifts, the availability of existing onsite space will be again reviewed during Title I design.

The gross annual cost for operating this facility is estimated to be approximately $580,000. This includes building maintenance, equipment repair, janitorial services, and utility costs.

1. Title and Location of Project: Health Physics Site Support Facility, Savannah River Site, Aiken, South Carolina

2a. Project No.: 96-D-473
2b. Construction Funded

ADS# SR-6985-20

9. Detail of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 2,680
1. Engineering, Design and Inspection at approximately 6 Percent of Construction Costs, Item c (Design, Drawings, and Specifications $750,000)	$1,280	
2. Construction Management Costs at 3.9 Percent of Construction Costs, Item c	480	
3. Project Management at 7.4 Percent of Construction Costs, Item c	920	
b. Land and Land Rights		0
c. Construction Costs		12,390
1. Improvements to Land	440	
2. Buildings	11,950	
3. Other Structures	0	
4. Utilities	0	
5. Special Facilities	0	
d. Standard Equipment		0
e. Major Computer Items		0
f. Removals Cost Less Salvage		0
g. Design and Project Liaison, Testing, Checkout and Acceptance		$ 15,070
Subtotal		2,130
h. Contingency at Approximately 29 Percent of Above Costs		$ 17,200
i. Total Line Item Cost (Section 12.a.1.(a))		0
j. Non-Federal Contribution		$ 17,200
k. Net Federal Total Estimated Cost (TEC)		

The Department of Energy (DOE) February 1993 escalation rates (% per year) used for this estimate are as follows:

Fiscal Year	1997	1998	1999
Escalation	2.7	2.8	3.0

The above estimate includes $1,205,000 for escalation.

1. Title and Location of Project: Health Physics Site Support Facility, Savannah River Site, Aiken, South Carolina

2a. Project No.: 96-D-473
2b. Construction Funded

ADS# SR-6985-20

10. Method of Performance

Design and inspection will be performed by competitively bid contractor A/E, under the direction of the site Management and Operating (M&O) contractor. Furniture and non-engineered equipment will be procured separate from the building construction activities if available site inventories are inadequate.

Note: The estimate is based on a completed conceptual design.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1997	FY 1998	FY 1999	FY 2000	Total
a. Total project cost						
1. Total Facility Costs						
(a) Line Item (Section 10.i.)	$ 0	$ 1,400	$ 3,800	$ 10,800	$ 1,200	$ 17,200
(b) Operating Expense Funded Equipment	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0
Total Facility Costs (Federal and Non-Federal)	$ 0	$ 1,400	$ 3,800	$ 10,800	$ 1200	$ 17,200
2. Other Project Costs						
(a) R&D Necessary to Complete Project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual Design Cost	1,170	0	0	0	0	1,170
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA Documentation Costs	40	0	0	0	0	40
(e) Other Project Related Costs	0	160	170	250	510	1,090
Total Other Project Costs	$ 1,210	$ 160	$ 170	$ 250	$ 510	$ 2,300
Total Project Cost	$ 1,210	$ 1,560	$ 3,970	$ 11,050	$ 1,710	$ 19,500
(f) Non-Federal Contribution	0	0	0	0	0	0
(g) Net Federal Total Project Cost (TPC)	$ 1,210	$ 1,560	$ 3,970	$ 11,050	$ 1,710	$ 19,500

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11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related Annual Funding (estimated life of project - 40 years)

1. Facility Operating Costs	$ 30
2. Facility Maintenance and Repair Cost	46
3. Programmatic Operating Expenses Directly Related to the Facility	0
4. Capital Equipment Not Related to Construction But Related to the Programmatic Effort in the Facility	400
5. GPP or Other Construction Related to Programmatic Effort in the Facility	0
6. Utility Costs	79
7. Other Related Costs	25
Total Related Annual Funding	$ 580

12. Narrative Explanation of Total Project Funding and Related Funding Requirements

a. Total Project Funding

1. Total Facility Costs
   (a) Line Item--Narrative not required.
   (b) Operating Expense Funded Equipment--None.
   (c) Inventories--None.
2. Other Project Costs
   (a) R&D Necessary to Complete Construction--None.
   (b) Conceptual Design Costs--Includes $1,170,000 in FY 1993 to prepare a Functional Design Criteria, scopes of work, preliminary drawings, conceptual estimate, conceptual design report, and a Task Order Proposed Request for A/E services.
   (c) Decontamination and Decommissioning (D&D)--None.
   (d) NEPA Documentation Costs--$40,000 for an Environmental Assessment.
   (e) Other Project Related Funding--Include startup, equipment set-up/checkout, training, and procedure and safety documentation preparation which totals $1,090,000.
   (f) Non-Federal Contribution--None.

1. Title and Location of Project:	Health Physics Site Support Facility, Savannah River Site, Aiken, South Carolina	2a. Project No.: 96-D-473 2b. Construction Funded	ADS# SR-6985-20

12. Narrative Explanation of Total Project Funding and Related Funding Requirements (continued)

b. Related Annual Funding (Estimated life of project--40 years)

1. Facility Operating Costs--existing personnel will be transferred from current locations, includes janitorial and supplies ($30,000).
2. Facility Maintenance and Repair Costs--Repair of equipment, HVAC, etc. ($46,000).
3. Programmatic Operating Expense Directly Related to the Facility--None.
4. Capital Equipment Not Related to Construction but Related to the Programmatic Effort in the Facility--Includes upgrading of laboratory Equipment ($400,000).
5. GPP or Other Construction Related to the Programmatic Effort--None.
6. Utility Costs--Estimated at $79,000 annually.
7. Other costs--$25,000.

2704

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

OFFICE OF SITE OPERATIONS
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Upgrade Site Road Infrastructure, Savannah River Site, Aiken, South Carolina

2a. Project No.: 95-D-155 ADS# SR-6985-16
2b. Construction Funded

3a. Date A-E Work Initiated (Title I Design Start Scheduled): 2nd Qtr. FY 1995

3b. A-E Work (Titles I & II) Duration: 19 months

4a. Date Physical Construction Starts: 4th Qtr. FY 1996

4b. Date Construction Ends: 4th Qtr. FY 1998

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $10,500
Total Project Cost (TPC) -- $11,370

6. Current Cost Estimate:
TEC -- $10,500
TPC -- $11,370

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
1995	$ 750	$ 0	$ 750	$ 700
1996	2,900	0	2,900	2,300
1997	4,137	0	4,137	3,800
1998	2,713	0	2,713	3,700

2705

1. Title and Location of Project:	Upgrade Site Road Infrastructure, Savannah River Site, Aiken, South Carolina	2a. Project No.: 95-D-155 2b. Construction Funded	ADS# SR-6085-16

8. Project Description, Justification and Scope

The Upgrade Site Road Infrastructure project provides for replacement of four bridges. The bridge replacement includes the 2-lane bridge on Road F, two 4-lane bridges on Road C, and the clover leaf bridge at Road 2 and Road C.

Bridges 603-2G and 603-3G are constructed on timber piles. Recent inspections show section loss on these piles ranging from 5 percent to 90 percent. The five-year inspection of SRS bridges have identified 603-1G and 603-67G to be in need of immediate replacement. Due to their inability to support designated loads, both of these bridges have been de-rated causing the re-routing and restricting of heavy loads, including; logging trucks, concrete trucks supporting ongoing construction; and the High Activity Waste Trailer that supports the Savannah River Technology Center.Currently, these bridges must be monitored closely during the passage of very heavy loads and must be inspected twice yearly, versus the normal five year cycle, to assess the load carrying capacity and safety. These bridges require replacement in order to safely carry their design loads.

The annual maintenance and repair costs are estimated to be $18,000. This includes cleaning of bridge deck, incidental striping and marking, bridge and road shoulder inspection, and maintenance of bridge bearing assemblies.

FY 1997 funds will be used to continue construction of the bridges.

NOTE: This project transferred to Environmental Management from Defense Programs in FY 1996.

9012

1. Title and Location of Project: Upgrade Site Road Infrastructure, Savannah River Site, Aiken, South Carolina | 2a. Project No.: 95-D-155 | 2b. Construction Funded | ADS# SR-4085-16

9. Detail of Cost Estimate

	Item Cost	Total Cost
a. Design and Management Costs		$ 1,900
1. Engineering, Design and Inspection at approximately 23 Percent of Construction Costs (item c) (Design, Drawings, and Specifications: $520,000)	$ 1,240	
2. Construction Management Costs at 8 Percent of Construction Costs (item c)	420	
3. Project Management at 4 Percent of Construction Costs, (item c)	240	
b. Land and Land Rights		0
c. Construction costs		5,400
1. Improvements to Land	0	
2. Buildings	0	
3. Other Structures (Bridges)	5,400	
4. Utilities	0	
5. Special Facilities	0	
d. Standard Equipment		0
e. Major Computer Items		0
f. Removal Cost Less Salvage		300
g. Design and Project Liaison, Testing, Checkout and Acceptance		0
Subtotal		$ 7,600
h. Contingencies at Approximately 38 Percent of Above Costs		2,900
i. Total Line Item Cost (Section 12.a.1.(a))		$ 10,500
j. Non-Federal Contribution		0
k. Net Federal Total Estimated Cost (TEC)		$ 10,500

Note: The estimate is based on a completed conceptual design.

The Department of Energy (DOE) August 1992 escalation rates (percent per year) used for this estimate are as follows:

Fiscal Year	1995	1996	1997	1998
Escalation	3.5	3.7	3.8	3.8

The above estimate includes $658,000 for escalation.

2707

10. Method of Performance

Title I and Title II design will be performed by the Corps of Engineers or a contractor. Procurement and project management will be performed by Corps of Engineers.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs						
1. Total Facility Costs						
(a) Line Item (Section 10.i.)	$ 0	$ 700	$ 2,300	$ 3,800	$ 3,700	$ 10,500
(b) Operating Expense Funded Equipment	0	0	0	0	0	
(c) Inventories	0	0	0	0	0	0
Total Facility Costs (Federal and Non-Federal)	$ 0	$ 700	$ 2,300	$ 3,800	$ 3,700	$ 10,500
2. Other Project Costs						
(a) R&D Necessary to Complete Project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual Design Costs	240	0	0	0	0	240
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA Documentation Costs	117	100	0	0	0	217
(e) Other Project Related Costs	29	78	115	99	92	413
Total Other Project Costs	$ 386	$ 178	$ 115	$ 99	$ 92	$ 870
Total Project Cost	$ 386	$ 878	$ 2,415	$ 3,899	3,792	$ 11,370
(f) Non-Federal Contribution	0	0	0	0	0	0
(g) Net Federal Total Project Cost (TPC)	$ 386	$ 878	$ 2,415	$ 3,899	3,792	$ 11,370

2708

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

b. Related annual funding (estimated life of project--20 years)

1. Facility operating costs	$ 0
2. Facility maintenance and repair costs	46
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	0
7. Other related costs	0
Total related annual funding	$ 46

12. Narrative Explanation of Total Project Funding and Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item--Narrative not required.
   (b) Operating Expense funded equipment--None.
   (c) Inventories--None.
2. Other project costs
   (a) R&D necessary to complete construction--None.
   (b) Conceptual Design Costs--$240,000 includes the cost in FY 1993 for the preparation of the conceptual design report.
   (c) Decontamination and Decommissioning (D&D)--None.
   (d) NEPA Documentation (Costs)--$217,000 includes costs for an Environmental Assessment, environmental permits and the HEC II Study.
   (e) Other project related costs--$413,000 includes the cost for part time operational tech support.
   (f) Non-Federal Contribution--None.

6709

1. Title and Location of Project: Upgrade Site Road Infrastructure, Savannah River Site, Aiken, South Carolina	2a. Project No.: 95-D-155 2b. Construction Funded	ADS# SR-6085-16

12. Narrative Explanation of Total Project Funding and Related Funding Requirements (continued)

b. Related annual funding
   1. Facility operating costs - None.
   2. Facility maintenance and repair costs - $46,000 includes cleaning of bridge deck, incidental striping and marking, bridge and road shoulder inspection and maintenance of bridge bearing assemblies. (.5 FTE)
   3. Programmatic operating expenses directly related to the facility - None.
   4. Capital equipment not related to construction but related to the programmatic effort in the facility - None.
   5. GPP or Other Construction Related to the Programmatic Effort - None.
   6. Utility costs - None.
   7. Other costs - None.

2710

DEPARTMENT OF ENERGY
FY 1997 OFFICE OF MANAGEMENT AND BUDGET REQUEST
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Changes from FY 1996 Congressional Budget Request are denoted with a vertical line in the left margin.)

OFFICE OF SITE OPERATIONS
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and location of project: Hazardous Materials Management and Emergency Response Training Center, Richland, Washington

2a. Project No. 95-E-600

2b. Construction funded

3a. Date A-E work initiated: 1ST Qtr. FY 1995 */
(Title I Design Start Scheduled)

3b. A-E Work (Title I & II) duration: 9 months

5. Previous cost estimate:
Total Estimated Cost (TEC) - $29,900
Total Project Cost (TPC) - $35,400

4a. Date physical construction starts: 4th Qtr. FY 1995

4b. Date construction ends: 3rd Qtr. FY 1997

6. Current cost estimate:
Total Estimated Cost (TEC) - $29,900
Total Project Cost (TPC) - $35,400

7. Financial Schedule (Federal Funds):

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1995	$ 7,000	$ 0	$ 7,000	$ 3,800
1996	15,000	0	15,000	15,300
1997	7,900	0	7,900	10,800
1998	0	0	0	0
1999	0	0	0	0

*/This data sheet has been revised in its entirety to reflect the current project scope, schedule and cost estimate reflected in the project Conceptual Design Report dated September 21, 1994. The project data sheet submitted in 1993 was based on preliminary estimates and contained "TBD" regarding funding required for FY 1996 through FY 1997.

1. Title and location of project:	Hazardous Materials Management and Emergency Response Training Center Richland, Washington	2a.	Project No. 95-E-600
		2b.	Construction funded

8. Brief Physical Description, Justification, and Scope

The Hazardous Material Management and Emergency Response (HAMMER) training center for Worker Safety will be a new 80-acre training site for hazardous material workers and emergency responders. The center will house approximately 30 "hands-on" training aids that will simulate hazardous waste management, environmental restoration, fire training, transportation, and emergency response activities. The center will also include an administrative building with classrooms, resource center, and emergency operations training facility; training buildings to house selected training props and services; and other training and support facilities. As cleanup evolves and as new technologies are developed, the HAMMER training center will be versatile enough to meet the changing training needs.

For the next 30 years, the main activities at the Hanford Site will involve the management and cleanup of toxic substances. Thousands of workers involved in these new activities will need systematic training appropriate to their tasks and the associated risks. This project is a very important part of the site mission and will enable the U.S. Department of Energy (DOE) to meet its high standards for safety.

The proposed HAMMER training center will provide a cost-effective, high-quality way to meet the Hanford Site training needs. HAMMER creates a partnership among DOE; its contractors; labor; local, state, and tribal governments; and selected institutions of higher education. Through this partnership, HAMMER will:

1. Host hands-on performance based on health and safety training to save lives and reduce costs.

2. Enhance the skills and knowledge of the environmental clean-up workers and emergency responders.

3. Support the diversification of the regional economy surrounding the Hanford Site.

The annual operating costs of this facility will be approximately $3,530,000 (estimated in FY 1999 dollars).

2712

1. Title and location of project:	Hazardous Materials Management and Emergency Response Training Center Richland, Washington	2a. Project No. 95-E-600
		2b. Construction funded

9. Details of Cost Estimate [b/]		Item Cost	Total Cost
a.	Design and management costs		$ 5,150
	(1) Engineering, design and inspection at approximately 14% of construction costs, Item C	$ 2,780	
	(2) USACE Construction management costs (at 8% of construction costs)	1,540	
	(3) WHC project management (at 4% of construction costs)	830	
b.	Land and land rights	0	
c.	Construction costs		20,060
	(1) Improvements to land	2,440	
	(2) Buildings (86,000 gross sq. ft./$115 per sq ft)	9,900	
	(3) Other structures (including training costs)	0	
	(4) Utilities	5,340	
	(5) Special facilities	2,380	
d.	Standard equipment		570
e.	Major computer items		0
f.	Removal cost less salvage		0
g.	Design and project liaison, testing, checkout, and acceptance		180
	Subtotal		$25,960
h.	Contingencies at approximately 15% of above costs		3,940
i.	Total line-item cost (Section 12.a.(1)(a))		$29,900
j.	Non-Federal contribution		0
h.	Net Federal Total Estimated Cost (TEC)		$29,900

[b/] All costs include escalation based on the Material and Labor Escalation Study, prepared by ICF Kaiser Hanford Company, dated February 1994. Engineering: FY 1995 (4.2%), FY 1996 (4.2%), FY 1997 (4.5%); construction: FY 1995 (3.4%), FY 1997 (3.4%), and FY 1998 (3.7%).

2713

1. Title and location of project:	Hazardous Materials Management and Emergency Response Training Center Richland, Washington	2a. Project No. 95-E-600
		2b. Construction funded

10. Method of Performance

The definitive design and construction engineering/inspection will be performed by a combination of the U.S. Army Corps of Engineers, Walla District (USACE) and an off-site Architect-Engineer contractor. To the maximum extent practicable, construction and procurement will be performed by fixed-price construction awarded on the basis of competitive bidding. The operating contractor will be responsible for overall project management and reporting to DOE.

11. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	Total
a. Total project costs							
1. Total facility costs							
(a) Line item	$ 0	$ 0	$3,800	$15,300	$10,800	$ 0	$29,900
(b) Operating expense-funded equip	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	150	0	150
Total direct costs	$ 0	$ 0	$3,800	$15,300	$10,950	$ 0	$30,050
2. Other project costs							
(a) R&D necessary to complete construction	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	0	2,300	350	0	0	0	2,650
(c) Decontamination & Decommissioning	0	0	0	0	0	0	0
(d) NEPA documentation	0	25	0	0	0	0	25
(e) Other project-related costs	0	175	450	700	1,350	0	2,675
Total other project costs	$ 0	$2,300	$ 800	$ 700	$ 1,350	$ 0	$ 5,350
Total project costs	$ 0	$2,500	$4,600	$16,000	$12,300	$ 0	$35,400
(f) Non-federal contribution	0	0	0	0	0	0	0
(g) Net Federal total project cost	$ 0	$2,500	$4,600	$16,000	$12,300	$ 0	$35,400

2714

1. Title and location of project:	Hazardous Materials Management and Emergency Response Training Center Richland, Washington	2a. Project No. 95-E-600
		2b. Construction funded

11. Schedule of Project Funding and Other Related Funding Requirements (continued)

	Total
b. Related annual costs */ (estimated useful life of the project: 30 years)	
(1) Facility operating costs	$ 1,300
(2) Facility maintenance and repair costs	2,180
(3) Programmatic operating expenses directly related to the facility	300
(4) CENRTC but related to programmatic effort in the facility	N/A
(5) General plant project or other construction related to programmatic effort in the facility	N/A
(6) Annual utility costs	320
(7) Other costs	N/A
Total related annual costs	$ 4,100

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project costs

(1) Total facility costs

(a) Line item: $29,900,000. This cost estimate is based on the Conceptual Design Report.

(b) Operating expense-funded equipment: None.

(c) Inventories: $150,000. This will be used to purchase consumable training supplies such as fire fighting foam, protective clothing, propane, maintenance supplies, and classroom materials.

(2) Other project costs

(a) R&D necessary to complete construction: None.

(b) Conceptual design costs: Conceptual design report will be completed at a cost of approximately $1,620,000. Advanced conceptual design will be completed at a cost of approximately $1,030,000.

(c) Decontamination and decommissioning: None.

(d) NEPA documentation: The cost to develop documentation to obtain a National Environmental Policy Act (NEPA) categorical exclusion is $25,000

(e) Other project-related costs: $2,675,000. This includes the functional design criteria, pre-design projects support, review of project documentation, the Fire Hazards Analysis, Cultural Resources Review, operating procedures, maintenance procedures, and operational readiness review.

(f) Non-Federal contribution: None.

*/ Estimated in FY 1999 dollars.

1. Title and location of project:	Hazardous Materials Management and Emergency Response Training Center Richland, Washington	2a. Project No. 95-E-600 2b. Construction funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements (continued)

b. Related annual costs (estimated useful life of the project: 30 years)

(1) Facility operating costs: $1,300,000; this includes the costs of overall facility management, scheduling, administration, and operational safety support for various training props.

(2) Facility maintenance and repair costs: $2,180,000; this includes the necessary maintenance of buildings, training props, associated equipment, and the 80-acre HAMMER site.

(3) Programmatic operating expenses directly related to the facility: $300,000; this includes the cost of program management directly related to the operation of this facility.

(4) Capital equipment not related to construction but related to programmatic effort in the facility: None.

(5) General plant project or other construction related to programmatic effort in the facility: None.

(6) Annual utility costs: $320,000; this includes all associated utilities and fuels required for operation of this facility.

(7) Other costs: None.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
(Changes from the FY 1996 Congressional Budget Request are denoted by a vertical line in the left margin.)

OFFICE OF SITE OPERATIONS
DEFENSE ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
(Tabular dollars in thousands. Narrative material in whole dollars.)

1. Title and Location of Project: Emergency Response Facility, Idaho National Engineering Laboratory, Idaho

2a. Project No.: 94-D-401 ADS# ID-6317-6
2b. Construction Funded

3a. Date A-E Work Initiated, (Title I Design Start Scheduled): 2nd Quarter FY 1994

3b. A-E Work (Titles I and II) Duration: 24 months

5. Previous Cost Estimate:
Total Estimated Cost (TEC) -- $13,430
Total Project Cost (TPC) -- $14,445

4a. Date Physical Construction Starts: 3rd Quarter FY 1995

4b. Date Construction Ends: 1st Quarter FY 1997

6. Current Cost Estimate:
TEC -- $11,430
TPC -- $12,301 a/

7. Financial Schedule (Federal Funds)

Fiscal Year	Appropriation	Adjustments	Obligations	Costs
1994	$ 1,190	$ (600) b/	$ 590	$ 590
1995	5,219	0	5,219	1,438
1996	5,074	0	5,074	7,772
1997	547	0	547	1,630
1998	0	0	0	0

a/ The TPC/TEC reductions are a result of FY 1996 indirect cost reductions associated with the Office of Nuclear Material and Facility Stabilization productivity initiatives, and reduction in workscope with the removal of Argonne National Laboratory - West (ANL-W) fire station design and construction activities.

b/ Adjustment reflects the Conference Mark ($590,000) and the general reduction ($10,000).

2217

1. Title and Location of Project:	Emergency Response Facility, Idaho National Engineering Laboratory, Idaho	2a. Project No.: 94-D-401 2b. Construction Funded

8. Project Description, Justification and Scope

This project provides for the design, procurement, and construction of a new fire station and fire fighter training facility at the Central Facilities Area (CFA) of the Idaho National Engineering Laboratory (INEL). The new fire station at CFA will consist of administrative offices, equipment maintenance areas, equipment storage, dormitory and ready room facilities, and response vehicle bays. The alarm control and response center will remain at the present location and will not be moved in the CFA fire station. The new fire fighter training facility will include a state-of-the-art computer controlled fire simulation facility and several outdoor fire training areas. The new station and training facility will be located adjacent to the CFA to enhance response time for emergency vehicles to the Idaho Chemical Processing Plant (ICPP) and Test Reactor Area (TRA).

This project is required to upgrade fire protection and fire protection personnel training to comply with DOE Orders and National Fire Protection Agency (NFPA) Codes. Without new facilities, the existing station and drill fields will require major additions and renovations to provide additional space and eliminate building deficiencies to meet the minimum regulatory and operational need of the Fire Department. The extent of renovations to correct deficiencies and provide an adequate facility would severely impact the Fire Department operations. The existing fire station at CFA and was constructed in the 1950's. Maintenance and repair costs will escalate as the facility continues to deteriorate with age. Without this project, fire fighter training requirements in accordance with DOE Order 5480.4, "Environmental Protection, Safety, and Health Protection Standards," and NFPA Codes 1001, "Fire Fighter Professional Qualifications," 1002, "Fire Apparatus Driver/Operator Qualifications," and 1003, "Air Port Fire Fighter Professional Qualifications" will not be met. The existing drill field utilizes diesel fuel ignited in open trenches to provide fires for training. Current State of Idaho regulations only allow these exercises to be conducted twice annually. The existing fire training tower has been closed due to OSHA deficiencies. What little training is provided will continue to adversely affect the environment and pose safety hazards to the trainees. Additionally, the Fire Department is currently out of compliance with NFPA 1500, "Fire Department Occupational Safety and Health Program" and NFPA Code 1581, "Fire Department Infectious Disease Control Program." The response team's existing living quarters will not support the additional growth necessary to provide coverage to the expanding activities at the INEL.

The Tiger Team's investigation of the INEL in the summer of 1991 produced findings resulting in two Corrective Action Plans (CAP) that require the construction of this project. Specifically, these CAP's are DOE1/FP6-1.CP01, "Fire Department Staffing and Resource Levels," DOE1/FP6-2.CP01, "Fire Department Facility Compliance."

1. Title and Location of Project:	Emergency Response Facility, Idaho National Engineering Laboratory, Idaho	2a. Project No.: 94-D-401 2b. Construction Funded

8. Project Description, Justification and Scope (continued)

The new fire station will be a single-story, pre-engineered, metal building system. Gabled ridge frames will provide a double-sloped roof with a minimum, inside height clearance of 14 ft at the side walls of the apparatus bays. A mezzanine level will be provided in each structure to house many of the building utility systems, and will be supported with steel columns and beams, utilizing the main structural frame columns to the extent possible.

The CFA Fire Training Facility will provide space for live fire training exercises as well as appropriate facilities for class room instruction. Live fire training will include the one of three computer controlled fire simulators, which are capable of providing various fire classes and catagories. This facility will be constructed with non-combustible materials.

23 254 96 96

2719

1. Title and Location of Project:	Emergency Response Facility, Idaho National Engineering Laboratory, Idaho	2a. Project No.: 94-D-401 2b. Construction Funded

9. Details of Cost Estimate

	Item Cost	Total Cost
a. Design and management costs		$ 2,598
1. Engineering design and inspection at approximately 15 percent of construction costs (item c)	$ 851	
2. Construction management costs at approximately 22 percent of construction costs (item c)	1,259	
3. Project management at 9 percent of construction costs (item c)	488	
b. Land and land rights		0
c. Construction costs		5,466
1. Improvements to land	598	
2. Buildings	3,731	
3. Other structures	0	
4. Utilities	1,137	
5. Special facilities	0	
d. Standard equipment		89
e. Major computer items		0
f. Removal cost less salvage		0
g. Design and project liaison, testing, checkout, and acceptance		0
Subtotal		$ 8,153
h. Contingency a/ at approximately 40 percent of above costs		3,277
i. Total line item cost (Section 12.a.1.(a))		$ 11,430
j. Non-Federal contribution		0
Net Federal total estimated cost (TEC)		$ 11,430

Note: Project costs are based on 100 percent completed conceptual design.

All costs have been escalated based upon the methodology developed for the Idaho Field Office in conjunction with the economic escalation indexes for Department of Energy construction projects.

a/ A Baseline Change Proposal is currently in process, which will utilize a portion of the contingency.

1. Title and Location of Project:	Emergency Response Facility, Idaho National Engineering Laboratory, Idaho	2a. Project No.: 94-D-401 2b. Construction Funded

10. Method of Performance

The Department of Energy Idaho Office (DOE-ID) shall be responsible for implementation of the project, including selection of principal contractors and approval of specified procurement actions. DOE-ID project management shall be performed by the Construction Management Group, in the Office of Program Execution. Safety, Environmental, and other project support shall be furnished to the project on an as-needed basis by the DOE-ID Matrix Organization.

The operating contractor will be responsible for the development of the project's technical requirements, completion of the Architectural and Engineering Design, review and management of the engineering and construction activities, procurement of selected equipment, checkout of systems, and maintenance of the completed project. Project Management shall be performed by the Facility Engineering Group.

The INEL Construction Manager (CM) shall be responsible for all construction activities at the INEL site, to include constructability review of the design, coordination of long-lead procurement of construction materials and equipment, construction subcontracting, direction of the activities of construction subcontractors, and performance and management of construction activities as required to complete the project in a timely, safe, and cost effective manner.

2721

1. Title and Location of Project: Emergency Response Facility, Idaho National Engineering Laboratory, Idaho

2a. Project No.: 94-D-401

2b. Construction Funded

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	TOTAL
a. Total project costs							
1. Total facility costs							
(a) Line item (Section 10.i.)	$ 0	$ 590	$ 1,438	$ 7,772	$ 1,630	$ 0	$11,430
(b) Operating expense funded equipment	0	0	0	0	0	0	0
(c) Inventories	0	0	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	$ 0	$ 590	$ 1,438	$ 7,772	$ 1,630	$ 0	$11,430
2. Other project costs							
(a) R&D necessary to complete project	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
(b) Conceptual design costs	283	0	0	0	0	0	283
(c) Decontamination & decommissioning (D&D)	0	0	0	0	0	0	0
(d) NEPA documentation costs	5	2	0	0	0	0	7
(e) Other project-related costs	90	42	77	136	236	0	581
Total other project costs	$ 378	$ 44	$ 77	$ 136	$ 236	0	$ 871
Total project costs	$ 378	$ 634	$ 1,515	$ 7,908	$ 1,866	$ 0	$12,301
(f) Non-Federal contribution	0	0	0	0	0	0	0
(g) Net Federal total project cost	$ 378	$ 634	$ 1,515	$ 7,908	$ 1,866	$ 0	$12,301

b. Related annual funding (estimated life of project--20 to 40 years)	
1. Facility operating costs	$ 2,000
2. Facility maintenance and repair costs	40
3. Programmatic operating expenses directly related to the facility	0
4. Capital equipment not related to construction but related to the programmatic effort in the facility	0
5. GPP or other construction related to the programmatic effort in the facility	0
6. Utility costs	25
7. Other costs	0
Total related annual funding	$ 2,065

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1. Title and Location of Project:	Emergency Response Facility, Idaho National Engineering Laboratory, Idaho	2a. Project No.: 94-D-401 2b. Construction Funded

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total project funding

1. Total facility costs
   (a) Line item--The cost is based upon the conceptual design that was completed in February 1992. The conceptual design cost estimate was prepared utilizing the INEL Cost Estimating Manual and DOE Order 5700.2C.
   (b) Expense-funded equipment--None.
   (c) Inventories--None.
2. Other project costs
   (a) R&D necessary to complete construction--Narrative not required.
   (b) Conceptual design--The conceptual design cost represents the FY 1992 operating funding which was expended for the preparation of functional and operational requirements, and the conceptual design report (CDR) which includes various engineering studies, a Quality Program Plan, and a Configuration Management Plan. Conceptual design costs also include the cost of performing design reviews of the CDR and incorporation of comments resulting from the review ($283,000).
   (c) Decontamination and decommissioning (D&D)--None.
   (d) NEPA documentation costs--The NEPA documentation is approved as a categorical exclusion at a cost of $5,000.
   (e) Other project related costs--This category includes the costs associated with the preparation of the project management plan, value engineering, relocation of equipment that will serve the same function as in its original location, system operational testing, operational readiness reviews, occupational readiness reviews, and operationally funded configuration management activities for the completed facility ($547,000).
   (f) Non-Federal contribution--None.

b. Related annual funding

Total facility operating costs are based upon FY 1993 Emergency Response Operating Budget for CFA, escalated to date of occupancy of the new facility. Facility maintenance and repair costs estimates are based upon conceptual design indications of routine and preventative maintenance. Utility costs are based upon estimates of utility usage conceptual design information and historical data for similar facilities.

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Uranium Enrichment Decontamination and Decommissioning Fund

Department of Energy

FY 1997 Congressional Budget Request

(discretionary budget authority in thousands of dollars)

	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request to Congress	FY 1997 vs. FY 1996	
Uranium Enrichment Decontamination and Decommissioning Fund	**301,327**	**278,807**	**240,200**	**-38,607**	**-13.8%**

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND

PROPOSED APPROPRIATION LANGUAGE

For necessary expenses in carrying out uranium enrichment facility decontamination and decommissioning, remedial actions and other activities of title II of the Atomic Energy Act of 1954 and title X, subtitle A of the Energy Policy Act of 1992 [$278,807,000] $240,200,000, to be derived from the fund, to remain available until expended: *Provided*, That the *Department is authorized to assess a fee on foreign customers of Government enrichment services to offset the full costs of environmental cleanup of the Government's three uranium enrichment plants, which fees shall be deposited in the fund and are not available until appropriated* [at least $42,000,000 of amounts derived from the fund for such expenses shall be expended in accordance with title X, subtitle A, of the Energy Policy Act of 1992.] (*Energy and Water Development Appropriations Act, 1996*)

EXPLANATION OF CHANGE

This language deletes the minimum amount in law to be expended for Uranium and Thorium payments under title X, subtitle A, of the Energy Policy Act of 1992.

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DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND
(Tabular dollars in thousands, narrative in whole dollars)

ENVIRONMENTAL RESTORATION

PROGRAM MISSION

The mission of the Environmental Restoration (ER) program is to protect human health and the environment from risks posed by inactive and surplus DOE facilities and contaminated areas, by remediating, decontaminating and dismantling (D&D) sites, facilities and contaminated areas in the most cost-efficient and responsible manner possible in order to provide for future beneficial use. Program responsibilities at these sites include interim/remedial actions, D&D, compliance oversight, surveillance and maintenance, landlord functions and a prudent amount of program management activities. This budget request includes funds to carry out activities that must be undertaken immediately to minimize or prevent significant risk to workers, the public or the environment; activities required by current Federal, State, and local regulatory agreements (in place or in negotiation); and support of other legal requirements, and DOE Orders.

The ER program currently manages activities in three appropriation accounts: EM Defense, EM Non-Defense, and this account, the Uranium Enrichment Decontamination and Decommissioning Fund. In total, the ER program includes over 600 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) projects, including 320 projects associated with sites on the Environmental Protection Agency's (EPA) National Priorities List (NPL), 46 Formerly Utilized Sites Remedial Actions Program (FUSRAP) sites and 24 Uranium Mill Tailings Remedial Action (UMTRA) sites, and more than 50 other projects. This budget area includes remediation efforts at three former DOE diffusion plants and the federal government share of cleanup work being carried out by mill site owners as specified in Title X, Subtitle A of the Energy Policy Act of 1992. See the Program Performance Summary later in this budget request for more details.

The ER program faces the following challenges;

- Addressing and minimizing urgent and near-term risk to workers, the public and the environment.
- Maintaining a safe, productive, results oriented program.
- Effectively prioritizing and sequencing work covered by Federal and State agreements to incorporate relative risk.
- Demonstrating substantial progress to stakeholders/taxpayers.
- Maintaining the momentum of the program given the constrained budgetary climate facing all Federal Government programs.

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To meet these challenges and fulfill its mission, the ER program has established eight goals. They are listed as follows:

(1) Eliminate, reduce, or contain off-site contamination that may pose an adverse risk to the public and/or environment.
(2) Prevent migration of contaminants through timely identification, reporting, assessment, application of best technologies, and safe storage.
(3) Identify, decontaminate and/or control all sites and facilities formerly used by DOE and its contractors.
(4) Eliminate, reduce, or contain on-site contamination, that in future land use, may pose an adverse risk to the public and/or environment.
(5) Responsibly and cost effectively invest in activities, such as site safety, security, and utilities required to maintain the infrastructure to support the ER mission.
(6) Expeditiously cleanup and release facilities and land for public beneficial use.
(7) Make prudent business decisions, such as, funding activities that support and enhance the effective and efficient achievement of the ER mission.
(8) Increase efforts to identify sources, nature and extent of contamination to allow more accurate determination of relative risk, scope and cost of projects and establish data needs/objectives before characterization to increase the cost effectiveness and efficiency of characterization efforts.

The broad strategy of the ER program is to accelerate remediation completions at small sites, address the highest risks first at large sites, and complete decommissioning. Hence, the ER program has organized its sites and facilities into five categories, based upon site and facility similarities, to implement this strategy. These five categories are: UMTRA and FUSRAP, Other Small Sites, Large Site Decommissioning, and large Site Remediation Actions. The organization in these five categories allows for comparability of like sites and facilities, refinement of program focus and direction, and development of remediation strategies. Remediation efforts at Environmental Restoration sites and facilities, within each category are prioritized and sequenced based upon the eight goals discussed above. The definition and objectives of these categories is contained in the Program Mission statements for Defense and Non-Defense activities. Please refer to those sections for a more detailed description of the five ER categories and the entire ER program.

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PROGRAM MISSION - ENVIRONMENTAL RESTORATION - D&D (Continued)

In response to the Department's commitment to improve management practices and to adopt performance based budgeting, the ER program tracks performance measures in four areas: 1) completed characterization/assessments; 2) completed interim and removal actions and expedite response actions; 3) completed remedial actions; and 4) completed final D&D projects. Characterization/Assessments are denoted by a completed key assessment document such as a Record of Decision (ROD), Corrective Measure Study (CMS), Closure Plan, D&D Plan, Proposed Plan, National Environmental Policy Act (NEPA) document, or No Action Decision. Interim and removal actions are any actions resulting in physical cleanup progress, reduction of exposure or contaminants or containment of a source term or any action to restrict access to contaminants. Final remedial actions include RCRA closures, RCRA final corrective measures, CERCLA final remedial actions, and completed underground tank programs. D&D final actions are completed when D&D objectives have been met and a report has been submitted for approval. In addition, the program tracks the status of on-going projects in the four performance areas.

The Environmental Restoration program has aggressively pursued productivity savings and cost efficiency initiatives with the objective to administer a program which delivers the "most bang for the buck." In particular, major efforts have been underway to increase the cost effectiveness and efficiency of characterization/assessment activities. In addition, much focus has been placed on the effective management of Environmental Restoration uncosted carryover balances to both reduce and optimize these balances using sound management practices.

To provide maximum flexibility in addressing remediation efforts, all activities are budgeted under operating expenses and include capital equipment-type and construction-type activities. This is consistent with the manner in which Environmental Restoration activities were budgeted and approved by Congress in previous years. General crosscutting support efforts required for effective management and control of Environmental Restoration activities are also included in this budget.

Specific information relating to program diversity, performance measures, assessment versus cleanup trends and uncosted carryover trends for the Environmental Restoration program are presented in the ER "Defense" Program Mission statement. Please refer to this section for tables which are presented from a "National" Environmental Restoration perspective. That is, they combine and display data for all three appropriation accounts for the purpose of demonstrating how the entire ER program fits together. Specific tables for this appropriation account can be found following the Program Performance Summary introductory paragraph for this section.

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND
(Dollars in Thousands)

PROGRAM FUNDING PROFILE

	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comparable Adjustments	FY 1996 Adjusted Comp	FY 1997 Budget Request
Uranium Enrichment D&D Fund	$301,327	$278,807	$0	$278,807	$240,200
Total, Budget Authority Request	$301,327	$278,807	$0	$278,807	$240,200
Government Contribution to UE D&D Fund (Revenue Offset)	($133,700)	(350,000)	0	(350,000)	(376,648)

Title X, Subtitle A, Energy Policy Act of 1992

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND
(Tabular dollars in thousands, narrative in whole dollars)

ENVIRONMENTAL RESTORATION

PROGRAM FUNDING BY SITE

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Original Appropriation	Real & Comparable Adjustments	FY 1996 Adjusted Comp	FY 1997 Budget Request	$ Change	% Change
OAK RIDGE OPERATIONS OFFICE							
K-25 Site	$101,936	$90,068	$0	$90,068	$66,908	($23,160)	-26%
Oak Ridge Operations Office	33,664	38,902	0	38,902	32,735	(6,167)	-16%
Oak Ridge Reservation (Off-site)	2,116	579	0	579	3,410	2,831	489%
Paducah Gaseous Diffusion Plant	53,868	48,303	0	48,303	34,310	(13,993)	-29%
Portsmouth Gaseous Diffusion Plant	68,043	58,955	0	58,955	60,837	1,882	3%
Subtotal, Oak Ridge	$259,627	$236,807	$0	$236,807	$198,200	($38,607)	-16%
HEADQUARTERS							
Headquarters	$41,700	$42,000	$0	$42,000	$42,000	$0	0%
TOTAL, ENVIRONMENTAL RESTORATION	$301,327	$278,807	$0	$278,807	$240,200	($38,607)	-14%

CMI	Corrective Measure Implementation
D&D	Decontamination and Decommissioning
DOE	Department of Energy
FFA	Federal Facility Agreement
GCEP	Gaseous Centrifuge Experimental Project
GSA	General Services Area
HSWA	Hazardous Solid Waste Amendments
HVAC	Heating, Ventilation and Air Conditioning
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NRC	Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
RCRA	Resource Conservation & Recovery Act
RFI	RCRA Facility Investigation
RI	Remedial Investigation
S&M	Surveillance and Maintenance
SWMU	Solid Waste Management Unit
TCE	Trichloroethylene
UMTRCA	Uranium Mill Tailings Radiation Control Act

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST
URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND
(Tabular dollars in thousands, narrative in whole dollars)

PROGRAM PERFORMANCE SUMMARY

The Uranium Enrichment Decontamination and Decommissioning (D&D) Fund, established by the Energy Policy Act of 1992, supports D&D, remedial actions, waste management efforts, K-25 landlord requirements, recycling activities, a prudent amount of program management and technical support necessary for effective management, and surveillance and maintenance (S&M) efforts associated with pre-existing conditions at the three gaseous diffusion plants owned by the Department of Energy (DOE) and located at Paducah, Kentucky; Portsmouth, Ohio; and Oak Ridge, Tennessee. As required by the Energy Policy Act of 1992, the Department completed a comprehensive environmental audit at the Paducah and Portsmouth sites prior to the lease of facilities at those sites to the United States Enrichment Corporation on July 1, 1993. The audit documented existing and future liabilities attributable to past practices for which the Department retains remediation responsibility.

The Energy Policy Act authorizes annual deposits into the D&D Fund of up to $480 million adjusted for inflation. Domestic utilities are to be assessed up to $150 million per year (adjusted for inflation) for 15 years based on their purchase of Department-produced separative work units. The remainder of the annual deposit, currently estimated at $330 million (adjusted for inflation) was authorized to come from annual appropriations. This Budget request assumes foreign fee receipts of $45,900,000 will be collected in FY 1997.

The Energy Policy Act (Title X, Subtitle A) also requires the DOE to develop and administer a reimbursement program for active uranium and thorium processing sites defined under Title II of the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 (Title II sites) which sold uranium and thorium to the United States Government. The purpose of this program is to assist Title II site owners by compensating them on a per-ton basis for the restoration costs of only those tailings resulting from sale of materials to the Federal Government. Each site licensee's maximum reimbursement is based on the short tons of dry tailings on the site attributable to sales of nuclear material to the Federal Government. The Energy Policy Act directed that funding for this reimbursement be taken from the Uranium Enrichment D&D Fund.

The technical criteria for reclamation, decommissioning, and decontamination are set by reference to UMTRCA, the requirements of the Nuclear Regulatory Commission (NRC), and the definitions in Title X of the Energy Policy Act. The NRC or the agreement States currently license the mill sites, have authority over the site, and require reclamation and closure to terminate the license. The DOE will not duplicate NRC or agreement State regulation in this area, but will perform an independent analysis to validate the claims made by licensees for reimbursement to ensure that reimbursement funds are properly distributed according to the intent of Title X. The Department promulgated regulations in FY 1994 which set forth the reimbursement claim management program, detailed the technical evaluation standards for reimbursement, and laid out the method for calculation of the cap on reimbursement for individual sites.

PROGRAM PERFORMANCE SUMMARY - ENVIRONMENTAL RESTORATION - D&D (Continued)

The areas of responsibility assigned to DOE under Title X of the Act include development of regulations under which Title II licensees may make claims to the U.S. Government for reimbursement; and review of documentation that established sales of uranium ore to the U.S. Government, including quantities sold and the resulting tailings generated. This determination represents the basis for all claims disbursement to a Title II licensee; review of claimants documentation for reimbursement; and reimbursement of licensees for approved claims.

For additional details on schedules and other site-specific information, please refer to the Operating Expense Site Activity Description Sheet included with this submission.

Tables follow (UE-1 through UE-3) which provide specific information for this budget request relating to overall fiscal year funding, distribution of funds by category of effort, and budget trends by category.

Table UE-1

ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

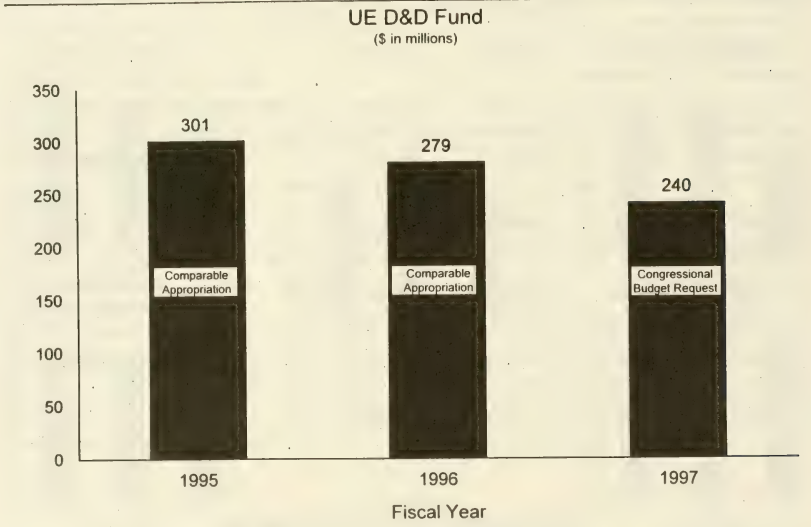

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Table UE-2
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

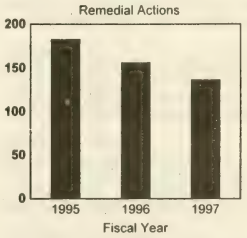
Distribution of Funding - UE D&D Fund

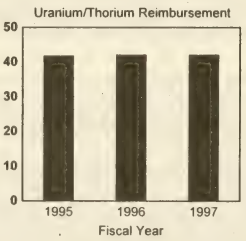
($ in thousands)

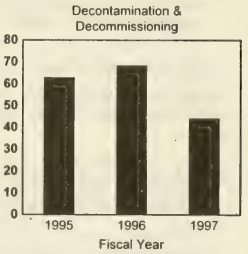
	FY 1995	FY 1996	FY 1997	% Change FY1996-FY1997
Remedial Actions	$182,528	$155,818	$136,221	-12.6%
Decontamination & Decommissioning	$62,704	$68,167	$43,979	-35.5%
Landlord	$10,363	$9,574	$9,500	-0.77%
Compliance Oversight	$4,032	$3,248	$8,500	162%
Uranium/Thorium Reimbursement	$41,700	$42,000	$42,000	0%
TOTAL	$301,327	$278,807	$240,200	-13.8%

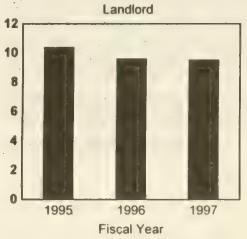
Table UE-3
ENVIRONMENTAL RESTORATION - FY 1997 CONGRESSIONAL BUDGET REQUEST

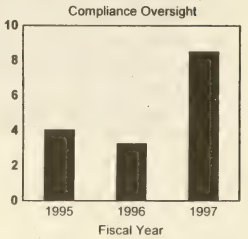
Budget Trend - UE D&D Fund
($ in millions)











ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

OAK RIDGE

1. Mission Supporting Goals and Objectives

The ER Program managed through the Oak Ridge Operations Office consists of four sites in three states including K-25 and Oak Ridge Operations Office (Tennessee), Paducah Gaseous Diffusion Plant (Kentucky), and the Portsmouth Gaseous Diffusion Plant (Ohio).

The K-25 site occupies 1,700 acres adjacent to the Clinch River, about 13 miles west of Oak Ridge. It was originally built to enrich uranium hexafluoride for Defense Programs. The majority of the 125 major buildings on the site are now inactive since production ceased in 1985. Only a small portion of K-25 activities are funded under the Defense appropriation. The majority of K-25 funding is requested under the Uranium Enrichment Decontamination and Decommissioning Fund appropriation. The Oak Ridge Operations Office is currently in the process of redirecting environmental management efforts toward privatization and beneficial reuse and recycling of facilities, equipment, and materials. There is an on-going initiative to attract private industry investment in the decommissioning infrastructure necessary to accomplish a cost-effective dismantlement and industrial reuse.

The Paducah Gaseous Diffusion Plant is located on 750 acres, including 74 acres of process buildings, and is approximately 15 miles west of Paducah, Kentucky. The Paducah GDP separates uranium isotopes through gaseous diffusion. The process produces enriched uranium, which is used for nuclear fuel in commercial power plants. Two hundred four potential release sites have been identified, of which 156 are grouped into 28 Waste Area Groupings. Major environmental restoration efforts will focus on contaminated ground water to stop offsite migration of contaminants.

The Portsmouth Gaseous Diffusion Plant is located on 3,700 acres, including 93 acres for the process building, and is approximately 20 miles north of Portsmouth, Ohio. The Portsmouth GDP separates uranium isotopes to produce enriched uranium used for fuel in commercial nuclear power plants and from 1956-1991, the production of highly-enriched uranium for defense purposes. Eighty-seven Solid Waste Management Units have been identified and grouped into four quadrants. Major environmental restoration efforts will focus on the contaminated aquifer beneath the site at Portsmouth.

The Oak Ridge Operations Office manages, coordinates, tracks, and assists in the implementation of the ER program among the various sites. Compliance oversight expenses and prudent amount of program management support is provided to assist in the integration of activities being carried out at the three gaseous diffusion plants. In addition, the Oak Ridge Operations Office manages oversight agreements with the States of Tennessee, Ohio, and Kentucky.

II. Funding Schedule - Oak Ridge (Continued)

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Remedial Action	$ 182,528	$ 155,818	$ 136,221	$ -19,597	-13
Decontamination and Decommissioning	62,704	68,167	43,979	-24,188	-36
Landlord	10,363	9,574	9,500	-74	-1
Compliance Oversight	4,032	3,248	8,500	+5,252	+162
TOTAL, Oak Ridge	$ 259,627	$ 236,807	$ 198,200	$ -38,607	-16

III. Performance Summary

FY 1995 Accomplishments

- Initiated metal recycling program at K-25.
- Completed assessment of Block Casting Area (K-1417) and Sludge Fixation Plant (K-1419); powerhouse Removal Project; completed RCRA Closure of K-1407-B Holding Pond and K-1407-C Retention Basin; and completed pond waste repackaging at K-25.
- Completed construction of Paducah interim actions such as the NW Plume IROD #1 Treatment Facility and North/South Diversion Ditch; completed two Paducah assessments through approval of both the NE Plume and WAG 22 (SWMUs 2 and 3) interim action RODs; continued the WAG 23 assessment through RI approval; completed design of the Paducah landfill; begin construction of waste storage facility Phase I at Paducah.
- Completed three Portsmouth assessments including Quadrant I X-749 Phase I CMS, Quad II X-705A/B Phase I and Quad IV/X-611A Wetlands CMS; completed the Peter Kiewit Landfill Seep Treatment interim action; and completed four remedial actions including the underground/above ground storage tanks, X-344A Closure, X-735 Landfill RCRA Closure, and the X-744 Yard Waste Sorting at Portsmouth.
- Completed Lower Watts Bar Reservoir (LWBR) ROD; submit draft Clinch River RI/FS; initiated LWBR monitoring and assessment program.
- Conducted support activities for legacy waste management at Paducah and Portsmouth including treatment, storage and disposal of waste; and provided guidance and support to the D&D site-wide programs.
- Assessed RCRA vulnerabilities at Paducah D&D facilities; performed D&D facility shutdown and S&M activities at Paducah; and completed cooling tower superstructure demolition at K-25.

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III. Performance Summary - Oak Ridge (Continued)

FY 1996 Accomplishments (To Date and Planned)

- Start GDP Small Scale Recycling program demonstration and motor decontamination.
- Complete Phase II construction for K-1070 SW 31 Spring; complete K-1417 and K-1419 RCRA Closures; and complete K-1650 and K-1652 Underground Storage Tank (UST) remedial actions at K-25.
- Complete Ground Water Phase V assessment and continue WAG 23 assessment through Feasibility Study approval; initiate Paducah remedial activities such as the NW Plume Iron Filing Treatability Study, and closure of C-409 and C-400-C RCRA facilities; complete construction of Paducah landfill; and complete construction of Phase I waste storage facility at Paducah.
- Complete X-749/X-120 CMS decision; complete X-701B CMS decision; complete X-705 A&B CMS decision and X-611 CMS decision; complete X-749/X-120 Pilot Ground Water Treatment Unit operational interim action; and complete Portsmouth remedial actions including X-611A Lime Sludge Lagoon, old consent decree closures and Peter Kiewit Landfill.
- Complete Clinch River RI/FS and initiate ROD; and continue LWBR monitoring plan.
- Conduct waste treatment, storage and disposal activities at Paducah and Portsmouth to support D&D and remediation efforts, including legacy waste management; support Federal Facilities Compliance Act requirements for mixed waste management at Portsmouth and Paducah; and provide cross-cutting support for site wide D&D programs including oversight development; continue mixed waste shipments to Envirocare from Portsmouth; continue Portsmouth and Paducah shipments of RCRA waste off-site for recycle and disposal; and cap Old Landfill (Cell 3) at Paducah.
- Perform Paducah D&D facility shutdown and Surveillance and Maintenance (S&M) activities; complete demolition of powerhouse complex at K-25; and complete decommissioning and removal of old cooling tower base and sediments at K-25; and complete removal of uranium deposits from pipes in K-25.
- Complete K-1250-4 bridge repair at K-25; continue to provide landlord activities to maintain infrastructure at K-25.

FY 1997 Planned Accomplishments

- Conduct D&D activities including cooling towers, Beryllium Building, and Uranium Recovery Building at K-25; continue Uranium Deposit Removal Project; conduct S&M activities; and provide landlord activities to maintain infrastructure at K-25. Continue large scale scrap metal recycling and GDP motor reuse programs ..... $ 66,908
- Complete Paducah assessments through development of the NW Plume interim action ROD #2 and initiating development of the WAG 1 and 7 ROD and WAG 23 ROD; begin Paducah WAG 22 (SWMUs 2 and 3) interim action construction; complete Paducah NE Plume interim action construction and remedial actions such as the NW Plume interim action #1; C-409 and C-400-C RCRA Closures; start Paducah assessment field work for WAG 17 and WAG 6; perform S&M activities on Paducah D&D facilities 34,310

ENVIRONMENTAL RESTORATION - D&D (Continued)

III. Performance Summary - Oak Ridge (Continued)

FY 1997 Planned Accomplishments (Continued)

- Continue Portsmouth Quad I X-749/120, Quad II X-701B and X-705 A/B CMIs; conduct Quad I X-231A CMI work plan; continue Quad II 7-unit area; conduct collection and treatment of Ground Water plumes; begin RCRA corrective measures for oil biodegration area TCA Plume; and continue S&M activities at Portsmouth 60,837
- Complete Clinch River ROD; and continue LWBR monitoring 3,410
- Conduct support activities for legacy waste management at Paducah and Portsmouth including treatment, storage and disposal; carryout limited recycling activities related to the three gaseous diffusion plants provide cross-cutting support for Oak Ridge site wide D&D programs including technology integration, ER waste management and Agreements-in-Principle (AIP). 32,735

Total FY 1997, Oak Ridge $198,200

Explanation of Funding Changes FY 1996 to FY 1997:

- Delay of D&D and recycling programs at K-25; elimination of K-1070A Burial Ground RI/FS and Pond Waste Management RCRA activities at K-25. (-$23M).
- Delay in completion of North East and North West Plume construction and operations at Paducah (-$14M).

Major Issues:

- Constrained budget will result in failure to comply with two signed RODs, resulting in fines and penalties.

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ENVIRONMENTAL RESTORATION
(Dollars in Thousands)

HEADQUARTERS

I. Mission Supporting Goals and Objectives

The Headquarters activity supports the partial payment of the Uranium/Thorium claims as described in the Program Performance Summary section of this budget request.

II. Funding Schedule

Program Activity	FY 1995 Comparable Appropriation	FY 1996 Comparable Appropriation	FY 1997 Request	$ Change	% Change
Uranium Reimbursement	$ 41,700	$ 42,000	$ 42,000	$ 0	0
TOTAL, Headquarters	$ 41,700	$ 42,000	$ 42,000	$ 0	0

III. Performance Summary

FY 1995 Accomplishments
- Provided for partial payment of approved Uranium/Thorium (Title X) Reimbursement claims.

FY 1996 Accomplishments (To Date and Planned)
- Provide for partial payment of approved Uranium/Thorium (Title X) Reimbursement claims.

FY 1997 Planned Accomplishments	
• Provide for partial payment of approved Uranium/Thorium (Title X) Reimbursement claims	$ 42,000
Total FY 1997, Headquarters	$ 42,000

Explanation of Funding Changes FY 1996 to FY 1997:
- None.

Major Issues:
- None.

URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND
(Obligations in Thousands)

PROGRAM OBJECT CLASS SUMMARY

Environmental Restoration

Personnel Compensation:	FY 1995 Comp	FY 1995 Non-Comp	FY 1996 Comp	FY 1996 Non-Comp	FY 1997
25.4 Operation & Maintenance of Facilities	$301,327	$301,327	$278,807	$278,807	$240,200
99.9 Total	$301,327	$301,327	$278,807	$278,807	$240,200

DEPARTMENT OF ENERGY
FY 1997 CONGRESSIONAL BUDGET REQUEST

OFFICE OF ENVIRONMENTAL RESTORATION
(Tabular dollars in thousands. Narrative material in whole dollars.)

1.	Title and location of project: Uranium Enrichment (UE) D&D Fund Various Locations	2a.	Project No. U-1.4.19
		2b.	Operating Expense Funded
3a.	Date assessment phase initiated: 1st Qtr. FY 1994 (under this appropriation)	5.	Previous cost estimate:
3b.	Duration of assessment phase: Beyond FY 2001		Total Estimated Cost (TEC): See TPC Total Project Cost (TPC): $2,001,299
4a.	Date remediation phase starts: 1st Qtr. FY 1994	6.	Current cost estimate: (through FY 2001)
4b.	Date remediation phase ends: Beyond FY 2001		TEC: See TPC TPC: $1,961,655*

7. Financial Schedule
UE D&D Fund Funded Only

Fiscal Year	Appropriations	Adjustments	Obligations	Costs
Previous Years	$ 245,720	$ 0	$ 245,720	$ 208,862
FY 1995	259,479	0	259,479	288,015
FY 1996	236,807	0	236,807	208,390
FY 1997	198,200	0	198,200	196,218
FY 1998	251,559	0	251,559	247,739
FY 1999	254,078	0	254,078	253,027
FY 2000	256,622	0	256,622	256,098
FY 2001	259,190	0	259,190	258,726

*Current cost estimate reflects appropriated dollars and FY 1997-2001 estimates.

1. Title and location of project:	Uranium Enrichment D&D Fund Various Locations	2a. Project No. U-1.4.19 2b. Operating Expense Funded

8. Project Description, Justification and Scope

The Environmental Restoration Major Systems Acquisition (MSA) is the aggregation of those activities required in order for the Department of Energy to satisfy it's goal of a 30-year cleanup of contaminated sites at all of the facilities and areas under its cognizance. This includes those activities necessary to plan, budget and manage all work necessary to meet the goal. Remedial action (RA) and decontamination and decommissioning (D&D) activities are conducted in accordance with State and Federal regulatory requirements and are often governed by chosen plans, consent decrees, and/or Federal Facility Agreements (FFAs), and/or Federal Facility Compliance Agreements.

The facilities managed by Lockheed Martin Energy System, Inc. (LMES), at DOE Oak Ridge Operations Office (ORO), where the ER activities are partially funded by the D&D Fund are: the K-25 Plant, the Portsmouth Gaseous Diffusion Plant (GDP), and the Paducah GDP. In addition, the funding is provided for K-25 Site Landlord, Clinch River/Watts Bar Lake Remedial Investigation, Waste Transportation, Storage and Disposal, and Technical Integration.

RA activities included Remedial Investigations/Feasibility Studies (RI/FSs) of contaminated sites, Resource Conservation and Recovery Act (RCRA) facilities assessments, interim corrective measures, remedial design and construction, and independent verification of the remedial activities.

D&D activities include the D&D of surplus facilities and equipment contaminated by various chemical and radioactive wastes. Pending the final disposition of D&D facilities, the goal of this activity is to initially place the D&D facilities in a state where they are harmless to the general public, or if the units cannot be acceptably decontaminated, to isolate and contain the units in order that the general public is not exposed to them. Surveillance and Maintenance (S&M) of facilities are also considered a part of this program.

Certain ORO facilities have been shutdown and therefore the Environmental Restoration program has accepted management responsibilities for these sites (e.g., K-25). Accompanying this management responsibility is funding responsibility for the maintenance, upgrades, and replacement of those site's infrastructure systems necessary to execute the remediation activities at those sites.

K-25 SITE

RA:
The Oak Ridge K-25 Site was built to supply enriched uranium for nuclear weapons production. The K-25 building was the first diffusion facility for large-scale separation of uranium. In response to the national postwar nuclear emphasis, plant operations were modified to include the production of uranium compatible with reactors used to generate electric power. Because of the declining demand for enriched uranium, the enrichment process was placed on standby in 1985 and shut down in 1987. Sixteen operable units have been identified at the K-25 site and are grouped into three general areas: main, process, and external plant areas.

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1. Title and location of project:	Uranium Enrichment D&D Fund Various Locations	2a. Project No. U-1.4.19 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

D&D:
The K-25 D&D program includes the S&M and D&D of 82 radioactive and/or hazardous material (HAZMAT) contaminated buildings (69 GDP, 13 centrifuge) for radioactive and/or HAZMAT safety IAW DOE Order for Radioactive Waste Management. The buildings have more than 307 acres of floor space, 5,000 process equipment stages, and many utility, electrical, ventilation, and cooling systems. The GDP buildings contain construction materials, internal fluids, and process auxiliary materials that are hazardous and regulated under current standards. The GDP buildings also hold special nuclear material (SNM), residual radionuclides (primarily uranium), and classified hardware. The GDP D&D program can be categorized into three areas: S&M; safe shutdown activities such as HAZMAT, removal and corrective actions; and decommissioning operations.

Landlord:
The purpose of these activities is to achieve and/or maintain a site infrastructure for environmental restoration and waste management activities to support industrial reuse of the site. This goal will be achieved by the procurement of capital equipment, the construction of new facilities when required, and improving existing facilities through electrical upgrades, asbestos abatements, and similar type projects.

Program Management Support:
This is a separate Summary Subproject for the Program Management activities that support all environmental restoration activities.

GDP S&M:
S&M to keep GDP facilities in a safe condition until decommissioning. S&M includes survey of 21 miles of asbestos insulation; 11,000 surplus polychlorinated biphenyls (PCBs) contaminated gaskets; 204 lubricating systems with 279,000 gallons of surplus oil; 44 process coolant systems with more than 2,000,000 pounds of fluorocarbons; SNM; and the maintenance of roofs and shells to ensure building integrity. Other required services include utilities, electric power, security, fire protection, Non-Destructive Assay (NDA) surveys, Nuclear Materials Control and Accountability support, environmental management, technical services (lab support), Health Physics, and Industrial Hygiene.

GDP Safe Shutdown - Removal of HAZMAT to Minimize Environmental Impact and Health/Safety Risks:
Hazards addressed include removal of asbestos; disposal of 11,000 surplus PCB contaminated electrical components and fluids; 279,000 gallons of surplus oil; 2,000,000 pounds of fluorocarbons; miscellaneous chemicals; uranium deposit removal and NDA surveys; reroofing; barrier plant contamination cleanup; radiation contamination control building upgrades; and OSHA electrical compliance work. Concurrent activities include project management and the inventorying, surplusing, characterization, and disposal of hazardous and surplus material.

2746

1. Title and location of project:	Uranium Enrichment D&D Fund Various Locations	2a. Project No. U-1.4.19 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

GDP Decommissioning Operations:
Dispose of process equipment (5,000 stages of equipment, including converters, compressors, motors, valve, piping, etc.) contaminated with uranium, auxiliary equipment (non-PCB electrical equipment, lube oil, coolant systems, etc.), the buildings, and contaminated concrete and soil. This also includes characterization, SNM removal/decontamination, restoration and/or demolition of the 82 D&D facilities. Construction, operation, and D&D of support facilities will occur as needed for high and low assay equipment decontamination; and low-level, mixed, hazardous, and sanitary waste of disposal facilities.

OAK RIDGE RESERVATION

Clinch River/Watts Bar:
The Clinch River/Watts Bar RI is a multiple-facility (Y-12, the Oak Ridge National Laboratory, K-25) and reservation-wide task that addresses the transport of water-borne contaminants beyond the boundary of the Department of Energy ORR; the contamination of water, sediment, and biota in off-site surface-water environments; and the risks to human-health and the environment associated with off-site contamination. This activity includes investigation of the nature and extent of contamination, identification and evaluation of remediation alternatives, implementation of selected remedial actions, and any interim measures determined to be necessary to protect human health and the environment.

Primary areas of investigation include Melton Hill Reservoir, the Clinch River from Melton Hill Dam to its confluence with the Tennessee River, the White Oak Creek Embayment, and the Poplar Creek Reservoir. The system is large, encompassing 140 river miles in length and 44,000 acres in surface area, and is used for municipal water supply, sport fishing, boating, swimming, tourism, and residential development. Contaminants of concern include metals (primarily Hg, Pb, As, Se, and Cr), organic compounds (primarily PCBs, dioxin, and chlordane), and radionuclides (primarily Cs-137, Co-60, H-3, and Sr-90).

PADUCAH GASEOUS DIFFUSION PLANT (PGDP)

RA:
The principal on-site process at PGDP is the separation of uranium isotopes through gaseous diffusion to produce enriched uranium. The site covers 750 acres (including 74 acres of process buildings). An estimated 200 Solid Waste Management Units (SWMUs) have been identified as needing characterization and ground water contamination exists both onsite and offsite. Major known contaminants are technetium-99, trichloroethylene in the ground water, and PCBs. There are two major offsite plumes currently undergoing remedial action under the Comprehensive Environmental Response, Compensation and Liability Act process. Offsite contamination have the highest priority for remediation as evidenced in the FFA. Onsite sources for Paducah currently under negotiation.

The following projects are under $3M: Paducah - Roof on H3 Pad, ER Staging Area, Waterline Extension, ER Trailer/ER Trailer IV, ER Field Laboratory, and Relocation of Shower Trailers and Trailer 2, waste storage facility Phase I construction; and Landfill construction.

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1. Title and location of project:	Uranium Enrichment D&D Fund Various Locations	2a. Project No. U-1.4.19 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

D&D:
Facilities at Paducah where the D&D program provide facility shut down, vulnerability studies, and S&M includes the C-340 and C-410 Buildings.

Program Management Support:
This is a separate Summary Subproject for the Program Management activities that support the RA D&D, and waste management subprojects across the site.

Waste Management (WM):
The WM Program at Paducah addresses the treatment, storage, and disposal of waste resulting from previous site operations and present day waste management activities. All wastes, including hazardous, nonhazardous, and radioactive are managed under this program. Studies and activities are needed to determine appropriate treatment methods and technologies necessary to treat and dispose of wastes, especially those wastes that are land disposal restricted. These activities are also necessary to meet the requirements of the Federal Facilities Compliance Act and the Toxicity Characteristic Leachate Procedure Federal Facility Compliance Agreement. Specific activities include initiating a project to remove asbestos from nickel ingots, completing the certification process for waste disposal, and compiling and analyzing data for accumulated wastes.

PORTSMOUTH GASEOUS DIFFUSION PLANT (PORTS)

RA:
The principal onsite process at PORTS is the separation of uranium isotopes through gaseous diffusion to produce enriched uranium. The site covers 3,700 acres (including 93 acres of process buildings). An estimated 104 SWMUs have been identified as needing characterization. Ground water contamination, especially trichlorethyle, exists. Contamination plumes have been identified and are currently contained within the on-site boundary. Major known contaminants are trichloroethylene, chromium, uranium, technetium and PCBs.

D&D:
The PORTS D&D program provides collective management of surplus facilities on site which require D&D, prioritizes those areas in terms of health, safety, and environmental concerns, and implements the appropriate level of remedial action, and manages various waste streams generated.

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1. Title and location of project:	Uranium Enrichment D&D Fund Various Locations	2a. Project No. U-1.4.19 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

Waste Management:
The WM Program at Portsmouth addresses the treatment, storage, and disposal of waste resulting from previous site operations and present day waste management activities. All wastes, including hazardous, nonhazardous, and radioactive are managed under this program. Studies and activities are needed to determine appropriate treatment methods and technologies necessary to treat and dispose of wastes, especially those wastes that are land disposal restricted. These activities are also necessary to meet the requirements of the Federal Facilities Compliance Act. Specific activities include determining the need for a new sanitary landfill, developing and implementing a waste tracking program, packaging and shipping wastes offsite, and sampling wastes to determine appropriate storage and treatment requirements.

Program Management Support:
Activities that support the MSA as a whole and cannot be associated with any particular Summary Subproject are funded in Program Management Support. These include the MSA-wide reporting, baselines and senior management of the DOE Prime Contractor. Also included are special projects that require funding but do not fall within any of the Summary Subprojects.

ER Waste Management Treatment/Storage/Disposal (TSD):
TSD activities are necessary to provide capacity for Environmental Restoration Waste Generation. These activities include design, construction, and operations for on-site facilities and funding for commercial TSD activities. LMES support functions include program management, training, systems and planning, and waste minimization. These activities include all waste streams (including D&D wastes) that cannot be treated or disposed of within the area of contamination at all sites. The ER waste management technical scope also involves TSD facilities/activities to provide capacity for ER waste generation which has been left untreated in storage or cannot be provided final disposition during remediation.

Construction Type Facilities:
This program is required to construct certain facilities/systems to carry out its mission. The following are those subprojects that are not remediation related but are still necessary to perform the program mission.

Surveillance and Monitoring:
This activity consists of post-closure inspection and maintenance, and operation and maintenance of facilities built in support of closure and Integrated Resource Management System Activities.

1. Title and location of project:	Uranium Enrichment D&D Fund Various Locations	2a. Project No. U-1.4.19 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

K-25 Electrical Utility Upgrades (Construction):
The conversion of the ungrounded 2,400 volt system to a grounded 13.8 kilo-volt system will eliminate personnel safety concerns by providing circuit isolation for single phase to ground faults. The primary supply for the overhead distribution system will be relocated in an effort to consolidate the power distribution.

K-730 Substation:
The existing 45 year old K-731/K-732 switchyard and support facility is the sole source of power for the entire K-25 site and is obsolete and has surpassed its useful life. Construction of the new K-730 Substation will assure that a continued reliable source of electrical power is maintained.

Section A and B:
Repairs to the K-1401 roof, Section A and B, at K-25 are needed to provide safe working conditions, to protect the equipment/facilities inside, and to properly maintain the building itself.

PGDP Waste Storage Phase I:
Funding before FY 1994 was provided by Uranium Enrichment appropriation. 42,000 square feet facility for the storage of liquid and solid RCRA, PCB-contaminated, low-level radioactive, and mixed wastes. The facility will include storage, weighing, sampling, and staging areas.

PGDP Subcontractor Staging Area:
Funding before FY 1994 was provided by Uranium Enrichment appropriation. The construction of four pre-engineered metal buildings and four office trailers for equipment decontamination, showers and toilets, inspections, offices, security, etc.

Off-Site Decontamination Pad:
Funding before FY 1994 was provided by Uranium Enrichment appropriation. The construction of decontamination building and storage building with access and service driveways and perimeter fencing.

PORTS Ground Water Pump and Treatment Facility:
The X-623 Ground Water Pump and Treatment Facility was constructed as part of the X-701B Closure Project. The system consists of three extraction wells around the X-701B Ponds and a facility to pump and treat the ground water to remove Volatile Organic Compounds. The facility can also accommodate tanker trucks with water to be treated.

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1. Title and location of project:	Uranium Enrichment D&D Fund Various Locations	2a. Project No. U-1.4.19 2b. Operating Expense Funded

8. Project Description, Justification and Scope (continued)

The Uranium Enrichment Decontamination and Decommissioning (D&D) Fund established by the Energy Policy Act of 1992 will support D&D, RAs, and S&M activities associated with pre-existing conditions at DOE-owned Gaseous Diffusion sites, including those leased and operated by the newly-established United States Enrichment Corporation. The act requires that the Department determine all existing and future liabilities attributable to past practices at these sites by way of a comprehensive environmental audit. The audit was completed in June 1993. The Department retains remediation responsibility for all pre-existing conditions before July 1, 1993. The purpose of the Environmental Restoration Program is to remediate, decontaminate, and dismantle those DOE sites/facilities in compliance with applicable local, State, and Federal regulations within the DOE's 30-year timetable for completion at the gaseous diffusion plants. Legal requirements include those of the Atomic Energy Act, other Federal and State statutes and regulations, and DOE Orders, as well as consent decrees and court orders. The primary Federal regulations that drive the Environmental Restoration are CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986, (the Oak Ridge Reservation is on the Environmental Protection Agency's National Priorities List), and RCRA. The construction type facilities listed above are necessary to support the remedial actions.

9. Method of Performance

Remedial Actions:

Remedial action alternative assessments will be performed by LMES personnel and subcontractors to LMES. Preparation of feasibility studies, RA plans, records of decisions, National Environmental Policy Act (NEPA) documentation, RA design and construction will be performed by DOE prime technical support contractors. LMES is the integrating contractor.

D&D:
Planning, preparation of feasibility studies, and NEPA documentation will be performed primarily by subcontractors to LMES.

S&M:
Activities consist of multi-disciplinary efforts coordinated by LMES and its subcontractors. These activities include periodic site inspections, maintenance of physical structures and containment systems, and radiological surveillance. Construction and procurement will be accomplished utilizing fixed-price subcontract awarded on the basis of competitive bidding, where it is in the best interest of the Government.

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1. Title and location of project: Uranium Enrichment D&D Fund
Various Locations

2a. Project No. U-1.4.19

2b. Operating Expense Funded

10. Schedule of Project Funding and Other Related Funding Requirements

	Prior Years	FY 1995	FY 1996	FY 1997	(FY 98-01) Outyears	Total
a. Subproject Summary Level						
1. Remedial Action	$ 161,128	$ 182,380	$ 155,818	$ 136,221	$ 727,803	$ 1,363,350
2. Decontamination & Dismantlement	64,759	62,704	68,167	43,979	217,623	457,232
3. Long-term S&M	843	0	0	0	0	843
4. Landlord	18,990	10,363	9,574	9,500	53,496	101,923
5. Compliance Oversight	0	4,032	3,248	8,500	22,527	38,307
Total	$ 245,720	$ 259,479	$ 236,807	$ 198,200	$ 1,021,449	$ 1,961,655

11. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, Office of Management and Budget Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

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FY 1997 BUDGET REQUEST TO

THE CONGRESS

FEDERAL ENERGY REGULATORY COMMISSION

MARCH 1996

Elizabeth A. Moler
Chair

(27 53)

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PROPOSED APPROPRIATION LANGUAGE

For necessary expenses of the Federal Energy Regulatory Commission to carry out the provisions of the Department of Energy Organization Act (42 U.S.C. 7101, et seq.), including services as authorized by 5 U.S.C. 3109, including the hire of passenger motor vehicles; official reception and representation expenses (not to exceed $3,000); [$131,290,000] $159,397,000 to remain available until expended: *Provided*, That notwithstanding any other provision of law, not to exceed [$131,290,000] $159,397,000 of revenues from fees and annual charges, and other services and collections in fiscal year [1996] 1997, shall be retained and used for necessary expenses in this account, and shall remain available until expended: *Provided further*, That the sum herein appropriated from the General Fund shall be reduced as revenues are received during fiscal year [1996] 1997, so as to result in a final fiscal year [1996] 1997 appropriation from the General Fund estimated at not more than $0.

NOTE:

This budget request reflects a FY 1996 appropriation of $131,290,000. Our operating requirement for that year is $159,514,000. We plan to meet this need by using $28,224,000 of prior year (PY) unobligated budget authority. In FY 1997, we intend to use the remaining $5,000,000 of PY unobligated budget authority to reduce our appropriation request from $164,397,000 to $159,397,000.

INTRODUCTION

Total Budget Request
$159.4 Million
1,463 FTEs

The Federal Energy Regulatory Commission (Commission) oversees key parts of the United States' energy industries — electric power, hydropower, and natural gas and oil pipelines. While the Commission's goals endure — protecting the public and the environment by ensuring that the activities of our regulated entities serve the public interest as required by law — the means by which we achieve these goals are changing. As the companies we regulate continue their evolution to a more competitive environment, we continue to refine our regulatory models and develop new ones that recognize the realities of the 1990s: more competition, more consciousness of environmental issues, and a world of commerce that moves much faster.

The Commission's total funding requirement for fiscal year (FY) 1997 is $164,397,000. However, we plan to apply $5,000,000 in unobligated budget authority available from prior years, thereby reducing our request to $159,397,000. The total funding will support a staffing level of 1,463 full-time equivalents (FTEs), an increase of 10 from the FY 1996 level of 1,453.

We will recover the full cost of our operations through a system of annual charges and fees. The revenue collected will be deposited in the Treasury as a direct offset to our appropriation and result in a net appropriation of $0.

Changing Priorities

This budget request reflects the Commission's changing regulatory priorities resulting from two factors: (1) the need to respond to fundamental changes in the electric power industry as we foster a more competitive industry and begin to deal with restructuring and open-access issues; and (2) the successful implementation of Order No. 636, which restructured the natural gas pipeline industry, and ongoing transition as competitive markets mature.

The Commission is transforming federal regulation of energy industries. Through a series of complex and controversial initiatives, the Commission has radically altered and streamlined regulation of the natural gas pipeline industry. As a result, market forces, not regulation, govern the price of natural gas as a commodity. Today these programs enjoy broad-based support.

The Commission has now begun to apply these same competitive market principles to the wholesale electric utility industry. This will be an enormously complex undertaking. It will

require the Commission to fashion open-access tariffs for every transmission-owning public utility in the country to permit expanded marketing of competitively priced power.

This initiative will require a concentration of highly specialized staff resources. Based on our experience with the natural gas industry, we are confident that the result will be increased competition, consumer benefits, a strengthened electricity industry, and — in the long term — a significantly different role for federal regulators in power markets.

Increased Focus on Electric Power

The Commission's role in the next few years will be to shepherd the electric utility industry through a transition to more fully competitive wholesale generation markets. The result will provide major benefits to consumers in the form of lower prices for electricity.

In the wake of the Energy Policy Act of 1992 (EPAct), the Commission has launched a series of initiatives to establish the foundations of a competitive electric industry. The centerpiece of these efforts is the proposed open-access rulemaking that would require utilities to provide open access to the Nation's interstate transmission network. Under the Commission's proposal:

- every public utility under the Commission's jurisdiction must file nondiscriminatory open-access tariffs, making their transmission systems available to all wholesale sellers and buyers of electric power, including their own wholesale customers and competitors;
- the utilities would also be required to take service under these same tariffs to ensure that they treated themselves comparably; and
- the utilities would be allowed the opportunity to recover any stranded costs.

The new rule will have major consumer benefits. A preliminary economic analysis of the impact of the rule contained in the Commission's draft environmental impact statement concludes it will save consumers between $3.75 and $5.5 billion annually.

The new rule (described in greater detail in the following chapter, Electric Power) will facilitate the development of a competitive electric power market by ensuring that wholesale buyers and sellers can reach each other through monopoly-owned transmission systems. The proposed rule is designed to eliminate anticompetitive and discriminatory practices in transmission services and to increase consumer benefits by fostering a competitive wholesale bulk power market for electricity.

The open-access rulemaking will require an enormous Commission effort. Virtually every segment of the electric utility industry — utilities, their customers, independent power producers, municipalities, rural electric cooperatives — as well as state and federal agencies, large industrial customers and financial organizations, have important issues at stake in this proceeding. In view of

the rulemaking's impacts on the industry, the Commission is preparing an environmental impact statement. In addition, to fully consider the important issues involved in moving to competitive markets, the Commission has opened related policy initiatives involving power pools, information systems, independent system operators, merger initiatives, and transmission pricing. The result, with anticipated action on final open-access, stranded-cost, and electronic information systems rules in the spring of 1996, will require a huge implementation effort and transition workload. As an example of the potential workload, the Commission issued over 12,000 pages of orders implementing the Order No. 636 program.

Once the final rule is issued, new or revised transmission tariffs will be required to be filed by the more than 150 interstate transmission-service public utilities under the Commission's jurisdiction. These tariffs, which by their very nature are complex, will likely engender public hearings before the Commission to ensure that their terms and rates are just and reasonable. Filings to recover stranded costs will come thereafter, and will raise their own set of complex, case-specific issues.

These initiatives will result in major consumer benefits that more than justify the minimal staff increase requested for FY 1997 to bring these benefits to fruition.

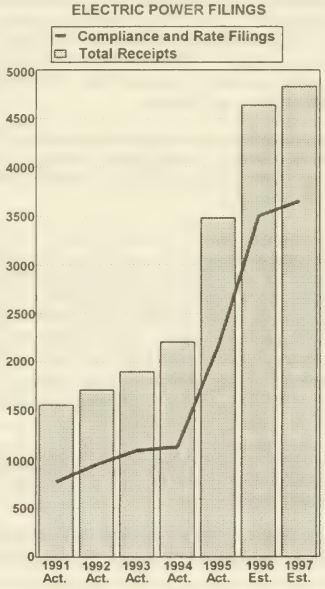
Resource Shifts

Even with the minimal staff increase being sought in this budget, achieving the changes described above will require a major shift in resources, with significantly less staffing and funding budgeted for the natural gas and oil pipeline program and an increase budgeted for electric power regulation. Resources for the hydropower program will remain relatively stable, with only a slight decline from the FY 1995 level.

All of the staffing decreases in the natural gas program and the minimal decrease in the hydropower program will be reallocated to the electric power program, where workload is burgeoning and which will require significant additional resources as we move toward open transmission access and increased competition. Some shifts took place in FY 1995 as staffing decreased in the natural gas area and increased in the electric power program. Further staffing changes will occur in FY 1996 and FY 1997. We are making use of internal staff transfers as much as possible.

Decreases in the Natural Gas and Oil Pipelines Program. The resource shifts respond to the directive of the Congress as expressed in the Conference Committee report accompanying the FY 1996 energy and water development appropriations bill, later enacted into law. In accordance with language in the report, the Commission is reducing staffing in the natural gas and oil pipelines program area to 533 FTEs by FY 1997, a 20% reduction from the FY 1995 authorized level of 666. An interim reduction to 585 is projected for FY 1996. Decreases in program funding in line with the staffing reductions are also planned for FY 1996 and FY 1997.

The Commission is facing a variety of new regulatory challenges as competitive natural gas markets mature. Successful implementation of Order No. 636 has led to many novel regulatory issues. Pipelines are designing new services, proposing novel rate approaches, and seeking new markets. These efforts result in new tariff filings with an accompanying request that the Commission respond quickly so the new, competitive business opportunity will not be lost due to regulatory delay. Local distribution companies are shedding pipeline capacity to lower operating costs and increasingly depend on short-term contracts and spot markets. Producers and other consumers depend on the Commission to ensure pipelines cannot exercise monopoly power in this new marketplace. The Commission has a vital role to play in this new marketplace. We have absorbed the 20% program cut. Further reductions would endanger our ability to respond to the industry's needs in a timely fashion. The new workload resulting from the restructured industry requires the resource levels reflected in this budget, which will allow us to maintain the efficiencies gained by the industry as a result of Order No. 636.



Increase to the Electric Power Program. Prior to FY 1995, we met all of the requirements of the EPAct without any additional funding or FTEs in the electric power program. Beginning in FY 1995, the program requirements simply exceeded our ability to continue without additional resources. In FY 1996 and FY 1997, we plan to meet the unprecedented workload demands by reallocating to the electric power program all of the staffing decreases from the natural gas program, along with the small decrease in the hydropower program. Further, this budget request includes an additional 10 FTEs for the electric power program to meet the burgeoning workload requirements as we implement wholesale open transmission access and move toward increased competition in the electric industry.

To illustrate the extent of the workload explosion: In FY 1995, total receipts in the electric power program had more than

doubled since FY 1991 (nearly 3,500 compared to 1,550), and are expected to triple by FY 1997 (to 4,830). Compliance and rate filings in FY 1995 were almost three times the number received in FY 1991 (2,165 compared to 770); and as early as FY 1996 are expected to more than quadruple (to 3,500). The unprecedented increases, coupled with the initiative to restructure the electric industry, require the increased level of resources for the electric power program reflected in this budget request.

Promoting Competition

Competition offers the best consumer protection from excessive rates. The Commission's strategy for electric power and natural gas and oil pipelines is to encourage market forces as much as possible. The transition to a competitive electric generation sector is underway. We have initiated inquiries into alternatives to cost-based ratemaking for natural gas pipelines, and have approved the use of market-based rates for gas storage facilities where lack of market power has been clearly shown. We have also authorized market-based rates in selected markets of two oil pipelines and have other proposals under review. We also certificate new natural gas pipeline facilities so that new natural gas supplies can serve new markets.

The experience of the past decade is that competition in these sectors can benefit energy consumers all over the country. In constant dollars, natural gas prices are lower, not higher, than they were 15 years ago. And customers have literally hundreds of services available to them that were not available just a few years ago.

Competition in one sector of a regulated industry presents a special challenge to regulators. The fact that gas production or electric generation can be competitive does not mean other sectors of these industries are also competitive. Both electric transmission and mainline gas transmission retain substantial aspects of monopoly power, regardless of competition in generation or production. That monopoly power can translate into market power to block competition in generation or production. The public needs some form of regulatory protection to guard against abuses of market power in these sectors. However, many traditional regulatory approaches are outdated. In some cases, they simply do not work in a world of competitive generation. In others, they hinder the growth of needed market mechanisms. The key to effective competition in both natural gas and electricity is continued regulation of the bottleneck monopolies.

The Commission's goal is to find ways to regulate electric utilities and natural gas and oil pipelines effectively in order to protect ratepayers while working with, rather than against, competitive commodity markets.

Electric Power. In the next few years the Commission will guide the industry through a transition to more fully competitive wholesale generation markets. The Nation endorsed greater competition

in wholesale electric markets with passage of the EPAct, and the Commission is aggressively pursuing its new responsibilities under the Act.

New policy initiatives are responding to, as well as setting in motion, revolutionary change in the electric power industry. Central to our new electric regulation is comparable (nondiscriminatory) open-access transmission, which will let all potential wholesale sellers and buyers use the transmission grid in the same way. That is the best way to encourage the continued growth of a fully competitive wholesale market for generation. On March 29, 1995, the Commission issued a proposed rule that would require all transmission-owning public utilities to provide comparable open-access transmission services.

The Commission is working to address other key issues related to the move to competitive markets. These include:

- stranded costs;
- transmission pricing;
- alternative power pooling institutions;
- regional transmission groups;
- electronic information networks; and
- utility merger policy.

This workload will include processing more new tariffs than we have ever dealt with before. New or revised tariffs will be required for more than 150 transmission service providers. We recognize many open-access tariff proposals will involve special considerations that are unique to a utility's system and may require full evidentiary hearings. Our responsibilities under EPAct and increasing competitive pressures in the industry are expanding, not reducing, our "traditional" workload.

The Commission is aware that legislation has been introduced to repeal the Public Utility Holding Company Act (PUHCA). If enacted, certain consumer protection authority and responsibilities would likely be transferred to the Commission from the Securities and Exchange Commission (SEC). The Commission could become responsible for auditing the books and records of non-utility members of registered holding companies to ensure that deregulated business activities are not subsidized by ratepayers. The Commission would need additional resources to meet these important new responsibilities. Because the legislation has not yet been enacted, we have not included any resources in this budget related to this possible need.

Natural Gas. Consumers need the best protection possible to assure just and reasonable rates, as mandated under the Natural Gas Act. We believe the best means for achieving this goal is to give

consumers access to competitive supplies and transportation whenever possible, while continuing to guard against possible abuses of market power where there can be little or no competition. Now that the industry has been operating under full implementation of Order No. 636 for several years, together the Commission and the industry need to develop approaches to ratemaking and new services that meet the needs of the new industry structure and competitive realities.

New policy initiatives are being crafted in response to the challenges of an evolving competitive gas industry. This will give customers greater reliability, competitive prices, and more valuable services tailored to their individual needs. Finding a way to protect customers in an increasingly dynamic market is the essence of the Commission's work for the foreseeable future. During the next few years we will see changes in these key areas:

- handling more complex natural gas pipeline rate filings;
- analyzing an array of new services and determining what aspects of these services must be regulated;
- setting pipeline rates while considering potentially competitive transportation services;
- encouraging further market development; and
- integrating new construction into the growing national gas market.

We have updated our rate filing and reporting requirements to reflect natural gas pipeline operations in the post-Order No. 636 environment. These revisions balance the need to reduce industry burdens with the need to expedite rate case processing, while still ensuring just and reasonable pipeline rates. The number of traditional rate cases is increasing, as pipelines file to change services and operations to fit the new operating environment and to meet individual customer needs. We anticipate dealing with many unique, complex issues that will need detailed analysis, but have no established precedent. Further, we will have to deal with these issues not only on an individual pipeline basis, but also on an industry-wide basis, as pipelines compete for business.

In FY 1995 we began an inquiry into possible alternatives to cost-of-service ratemaking by issuing a staff white paper for comment. After review of the comments, the Commission issued a policy statement. This policy statement establishes the criteria the Commission will use in evaluating market power of gas pipelines in determining whether to allow market-based rates. It also establishes criteria for evaluating incentive rate proposals. In addition, the Commission determined it would permit the pipelines additional ratemaking flexibility to deal with the changing capacity needs of their customers. In this regard, the Commission authorized pipelines to negotiate individual rate proposals with their customers as long as a traditional cost of service rate is available as a recourse rate.

We hope to provide incentives for efficient operation of monopoly transportation facilities, and to encourage greater throughput through existing facilities, while still meeting our consumer protection

mandate. Where competition exists for gas pipelines, we have authorized a substantial number of proposals for market-based storage rates. And we are exploring alternatives to cost-based ratemaking for other transportation services.

We will meet more challenges as we encourage further market development. As contracts expire, we anticipate capacity holders will reassess the level of firm capacity they need to hold on any pipeline in light of the options now available, such as released and interruptible capacity. Dealing with freed capacity will pose challenges for pipelines, their customers, and the Commission. Through policy statements, such as our recently issued pricing policy for new and existing pipeline construction, we are attempting to reduce uncertainty for pipelines and their customers. Through this new pricing policy, we are seeking to balance the need to encourage new construction and expand markets with the need to protect existing customers.

Oil Pipelines. For oil pipelines, we have implemented the revised regulatory scheme mandated by the EPAct by establishing a simplified method of ratemaking in the form of indexing rates. This method is available for pipelines that do not wish to establish cost-of-service rates or to make a showing of lack of market power that would permit market-based rates.

Making Regulation Work Better

We are committed to a long-term strategy of improving the quality and efficiency of regulation. To do this, we will be more productive and lessen the burden placed on the industries. We expect to achieve these goals by:

- increasing the use of electronic filing and bulletin boards;
- increasing the use of alternative dispute resolution (ADR) techniques;
- improving environmental programs;
- shifting emphasis away from traditional routine casework; and
- supporting the National Performance Review policies.

Electronic Filing and Bulletin Boards. The Commission plans to continue to reduce the industries' paperwork. Electronic filing is already in place for many purposes and will be expanded further. As part of our building consolidation, we developed an electronic infrastructure that encourages more electronic filing and enhances our ability to work directly with electronically filed documents. This will save the industries we regulate money in making their filings and will improve the Commission's work because accessing information will be much easier and faster.

The availability of information is a key element in moving from regulated to competitive markets. In FY 1995 we established the FERC Form No. 1 Forum and Gas Pipeline Data bulletin boards to

disseminate some of the electronic data we collect in a more timely and efficient basis. The bulletin boards provide free access to significant amounts of electric utility and gas pipeline industry data to any person with a computer and modem. Computer systems also provide access to Commission documents and provide users with information on how to obtain some Commission services. We will continue to expand the information available electronically in the coming years.

Alternative Dispute Resolution (ADR). The Commission adheres to the principles of the two major Congressional ADR initiatives, the Administrative Dispute Resolution Act of 1990 and the Negotiated Rulemaking Act.

The Commission remains a pioneer in the area of developing alternatives to lengthy, costly formal hearings. In addition to settling about three-fourths of the public utility and gas and oil pipeline rate cases through negotiation, the Commission has used settlement judges and mediators in its casework. The Commission also adopted ADR procedures for oil pipelines as part of its implementation of the EPAct. These procedures have allowed cases to be resolved in months rather than years. Additionally, the Commission issued a final rule on April 12, 1995, implementing ADR procedures in all of the Commission's program areas.

Recently, the Commission has encouraged the growth of regional transmission groups (RTGs) in electric power. These organizations — composed of all stakeholders: utilities, their customers, independent power producers, and state regulators — promise to provide fair ways to handle many disputes that would otherwise come to the Commission for decision. Setting up and abiding by ADR mechanisms is one of the key aspects of a well-functioning RTG.

This same attention to streamlining dispute resolution applies to environmental areas. For both hydropower licensing and natural gas pipelines, we use prefiling meetings to identify potential areas of conflict early in the review process. Later, we use technical conferences and local public meetings to promote understanding and compromise among the parties.

Recently, the Commission has obtained the assistance of the Federal Mediation and Conciliation Service to facilitate a negotiated settlement of one particularly controversial hydroelectric case. The Commission will use this experience as a model for encouraging future efforts to resolve complex cases through facilitated ADR.

Environmental Programs. Environmental protection remains an important part of the Commission's statutory work. To meet the challenge of increasingly contentious environmental issues, we are improving our environmental programs by:

- balancing the Nation's growing energy needs with the public's growing concern for the environment;

- cooperating with other federal and state agencies to save time and money and arrive at better decisions; and

- monitoring to ensure that the industries are complying with environmental conditions to protect the environment and private property.

Shifting Emphasis. Increasingly, the Commission's approach to regulation is to monitor the industries it regulates, and to act only when there is a clear need to do so. Monitoring allows us to:

- reduce the number of contested issues in cases and limit the number of litigated cases brought before the Commission;

- lower the costs to industry;

- enhance the value of the Commission's work;

- concentrate in other areas that need attention, such as the changing conditions in the electric and natural gas areas; and

- ensure that industries are complying with imposed conditions, such as continued high levels of dam safety.

National Performance Review Streamlining. The Commission fully supports the Administration's and Congress' effort to reduce the size and costs of the federal government. While this budget reflects a modest increase in staffing and funding levels, that increase is attributable to additional workload resulting from EPAct. We have carefully tailored this increase to take full advantage of realized savings in our programs and to meet what we believe will be a truly extraordinary new workload. We face the challenge of meeting new program requirements in the electric power program. We intend to implement an entire new, nationwide open-access transmission regime with minimal new staff resources; we are requesting only 10 new FTEs in this budget, to be devoted to the electric power program.

We plan to meet NPR-targeted levels by reducing certain administrative and support staff. Improved technical and administrative processes now available and under development should help us achieve this goal — for example:

- the installation of the Commission-wide LAN computer system that enhances our ability to communicate with each other;

- the development of computer-based systems that enable companies to submit information electronically; and

- the expansion of electronic filing and electronic bulletin boards that ease the burden on industry and result in significant savings in time and money.

Conclusion

This budget request for 1,463 FTEs and $159,397,000 in new budget authority, along with the use of $5,000,000 in prior-year unexpended budget authority, will provide the level of resources necessary to carry out the full and varied range of our statutory responsibilities. Total planned spending for FY 1997 is only 3.1% over total planned expenditures for FY 1996, even though this budget request includes mandatory increases for the general pay raise and the locality pay adjustment.

Prior to FY 1996, we absorbed the large increases in our electric workload resulting from the EPAct without any new funding or new FTEs. We found, however, that beginning in FY 1995, we could no longer continue that practice, as the mounting workload requirements simply exceeded our capacity to keep pace. As a result, this budget reflects increased resource levels for the electric power program beginning in FY 1996 and continuing into FY 1997. To the extent possible, we will continue to shift staff internally from the natural gas program to cover most of the increased staffing needs. Where necessary, we will hire new staff for specialized occupational skills. This budget will support 10 additional FTEs, which are designated for the electric power program.

The budget also addresses the Congress' direction to reduce staffing by 20% in the natural gas and oil pipelines program by the end of FY 1997. We will manage this by reducing staff in this program in FY 1996 and again in FY 1997 without undue jeopardy to the primary functions and objectives of the natural gas and oil pipeline program. However, even with anticipated gains in efficiency in workload processing and adjustments to staff and workload assignments, these reductions will have an impact on the Commission's ability to process all of the natural gas and oil workload. The anticipated result is that pending workload will increase in some areas as we give priority to cases having statutorily imposed deadlines.

While total resource levels remain about the same in the hydropower program, we are shifting people within the program from the licensing and relicensing function to the compliance and dam safety functions to meet the increased workload in those areas anticipated because of the large number of recently issued relicenses.

RESOURCES SUMMARY
($ in Thousands)

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Request
Program			
Electric Power	$38,088	$42,858	$51,162
Hydropower	56,949	52,300	53,429
Natural Gas and Oil Pipelines	68,554	64,356	59,806
Total Operating Expenses	$163,591	$159,514	$164,397
Application of Prior-Year Budget Authority		(28,224)	(5,000)
Budget Authority/Offsetting Receipts	163,591	131,290	159,397
Net Expenses	$0	$0	$0

FULL-TIME EQUIVALENTS (FTEs)

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Request
Program			
Electric Power	346	414	486
Hydropower	455	454	444
Natural Gas and Oil Pipelines	609	585	533
Total FTEs	1,410	1,453	1,463

NOTE: As directed by the Congress, the Commission is reducing staffing in the natural gas and oil pipelines program to 533 FTEs by FY 1997, a 20% reduction from the FY 1995 authorized level of 666. The FY 1995 actual level shown above reflects the progress we have made thus far.

SUMMARY OF TOTAL WORKLOAD

Receipts

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Electric Power[1]	3,477	4,636	4,830
Hydropower	6,408	6,225	6,310
Natural Gas and Oil Pipelines	10,809	6,645[2]	6,416
TOTAL	20,694	17,506	17,556

Completions

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Electric Power[1]	3,193	4,645	4,832
Hydropower	6,519	6,239	6,457
Natural Gas and Oil Pipelines	10,759	6,670	6,281
TOTAL	20,471	17,554	17,570

Year-End Pending

	FY 1994 Actual	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Electric Power[1]	977	1,261	1,252	1,250
Hydropower	2,007	1,896	1,882	1,735
Natural Gas and Oil Pipelines	1,593	1,643	1,618	1,753
TOTAL	4,577	4,800	4,752	4,738

[1]Please see the discussion on page 4 of the Introduction and the workload tables at end of Electric Power Chapter and in Appendix A for FY 1994 receipts and completions in Electric Power, which give a fuller indication of workload increases in this area.

[2]This large decrease reflects the termination of the ministerial filing of the transportation transactions, which required less than three FTEs to maintain.

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ELECTRIC POWER
Operating Expenses
($ in Thousands)

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Request
FUNDING	$38,088	$42,858	$51,162
FTEs	346	414	486

Overview

The changes taking place in the electric industry today are nothing short of revolutionary. During the next few years, the Commission's role will be to guide the industry through the transition to a fully competitive market for wholesale generation. But, as we learned from our experience in the natural gas industry, transitions must be carefully managed to ensure that they are successful and to assure that competition is working. The key to making competition work in the electric industry is access to the electric transmission grid controlled by the public utilities subject to our jurisdiction.

Since the passage of the Energy Policy Act of 1992 (EPAct), the Commission has been aggressively pursuing policies intended to foster open-access transmission and the development of a fully competitive bulk power market for electricity. EPAct granted the Commission significant new authority to compel public utilities to provide transmission service. In addition, the Commission has been reexamining its existing authority under the Federal Power Act (FPA) to remedy claims of undue discrimination. In a series of orders issued in FY 1994, the Commission found that it was unduly discriminatory and anti-competitive for a public utility to offer transmission service that was not comparable to that which a transmission owner provides itself.

Building upon this "golden rule" of transmission access, on March 29, 1995, the Commission issued a proposed rule that would require all public utilities subject to its jurisdiction to provide comparable open-access transmission services. The proposed rule also addresses the recovery of costs that may be stranded as a result of the transition to more competitive, market-driven regulation of electric generation at the wholesale level.

The Commission anticipates taking final action on the proposed rule during FY 1996. This will be an enormous and resource-intensive undertaking, to include an environmental impact statement

assessing the economic and environmental effects of the rule. Comments on the proposed rule were filed by more than 400 entities representing all segments of the industry. Furthermore, implementation of the final rule will require new transmission tariffs by more than 150 public utilities subject to the Commission's jurisdiction.

The Commission is also working to address other key issues related to moving to a more fully competitive wholesale market for electric generation, including transmission pricing, alternative power pooling institutions, regional transmission groups, independent system operators, merger initiatives, and the electronic information networks that are necessary to ensure that those who use the open-access transmission systems have fair access to transmission information. We are also considering what changes in the Commission's accounting, reporting, and related recordkeeping requirements will be necessary to implement the Commission's final rule in the open-access proceeding.

While we are grappling with many of these important policy initiatives on a generic basis, EPAct and the increasing competitive pressures in the industry are also increasing our traditional caseload. Part of this increase is simply a function of increasing commerce and the many new participants in the industry (e.g., independent power producers, power marketers). We are also seeing increases in our corporate workload as the industry responds to the competitive changes which are occurring. Many utilities are considering restructuring or potential mergers as they position themselves to take advantage of new competitive opportunities. If undertaken, these actions must be filed with, and approved by, the Commission under the FPA. As new institutions form, such as regional transmission groups, and other institutions evolve, such as power pools and independent system operators, the Commission is facing many new cases involving complex policy issues of first impression. The Commission is also seeing many new and innovative transmission pricing proposals being filed by regulated utilities for approval, including new proposals to augment prior power pooling arrangements.

In short, the Commission's electric workload — both traditional and nontraditional — has increased dramatically. The Commission expects that trend to continue as we guide the industry through the competitive changes that are occurring. Greater resources are required, including increased staffing in the electric program, for FY 1996 and FY 1997 in order for us to continue to fulfill our existing responsibilities under the FPA and, more importantly, to ensure a successful transition to a fully competitive market for wholesale electric generation. The open-access transmission initiatives that we are undertaking will ultimately result in major consumer benefits, increase customer choice, and lower electricity rates in the United States.

Background

Under the FPA we regulate the wholesale power rates, transmission service and rates, and corporate activities of about 370 electric utilities, including a few rural electric cooperatives not regulated by the Rural Utilities Service. The number of electric utilities subject to our rate regulation has increased

in recent years with the emergence of nontraditional entities, such as power marketers and independent power producers. Our workload will also be affected by nonjurisdictional entities such as public power companies filing for Commission determinations that their tariffs provide for open access so they may in turn qualify under the reciprocity provisions of the Commission's open access rule. In this way they will be able to obtain open access. We also determine qualifying facility status for small power producers and cogenerators under the Public Utility Regulatory Policies Act of 1978 (PURPA), determine exempt wholesale generator status under Section 32 of the Public Utility Holding Company Act (PUHCA), as amended by the Energy Policy Act (EPAct), and review the rates of the five federal power marketing administrations.

We analyze and act on filings involving:

- wholesale power sales and transmission of electric energy in interstate commerce by public utilities;
- applications to order transmission service;
- regional transmission groups, exempt wholesale generators, and small power producers and cogenerators;
- corporate mergers and acquisitions, security issuances and assumptions of liabilities, and interlocking directorates;
- power marketed from federal hydroelectric projects; and
- accounting and financial reporting issues.

FY 1995 and FY 1996 Achievements

In the electric power program, we:

- began a series of rulemaking initiatives to promote the transition to a competitive, open access, wholesale electric power market by:
  - (1) issuing a proposed rule regarding nondiscriminatory, open-access transmission and the recovery of stranded costs by public utilities;
  - (2) issuing a draft environmental impact statement on the proposed transmission-access rule;
  - (3) issuing a proposed rule on electronic information network requirements;

(4) accepting for filing 47 open-access tariffs, which were submitted by 78 public utilities following the issuance of the open-access transmission proposed rule; and

(5) holding three conferences relating to pro forma tariffs, power pools, and independent system operators;

- continued implementation of the EPAct and related matters by:

  (1) taking action on seven applications for transmission services filed pursuant to the amended Section 211 of the Federal Power Act; and

  (2) processing 58 exempt wholesale generator applications;

- issued a transmission pricing policy statement in October 1994;

- received filings by 3 regional transmission groups that span the interconnected grid in the western United States (and parts of Canada), approved 2, and conditionally approved 1;

- brought the number of power marketers up to nearly 200;

- initiated a major new inquiry about the function and regulation of power pools, including new potential institutional arrangements to increase wholesale power competition;

- developed and field-tested a software application for electronic filing of our Form No. 1 and issued a final rule requiring electronic filing of this form beginning with the 1994 reporting year;

- established an electronic bulletin board system for Form No. 1 operating and accounting data for public utilities;

- issued a number of orders regarding interpretation of the avoided cost rate standard under PURPA;

- issued a notice of intent on our merger policies in light of the ongoing changes in the industry and the expected increase in merger activity;

- acted on several controversial merger applications, including issuing a hearing order on the proposed El Paso-Central and South West merger, issuing a final opinion approving the Entergy-Gulf States merger, and accepting the PSI-Cincinnati Gas & Electric Company merger, Delmarva-Conowingo merger and the merger of MidWest Resources and Iowa-Illinois into Mid-American Energy Company;

- issued a final rule in January 1995, streamlining the Commission's regulations for rate filings by public utilities, issuances of securities and assumptions of liabilities by public utilities, licensees and others, and rules governing qualifying facilities;

- issued a final rule regarding the permissible types of investments for utilities' nuclear plant decommissioning trust funds;

- issued a policy statement and final rule on coordination transaction ratemaking treatment for emission allowances under the Clean Air Act Amendments of 1990 (CAAA);

- issued the *Annual Qualifying Facilities Report* providing comprehensive information on qualifying facilities certified from the inception of PURPA;

- conducted the eighth biennial review of fuel and energy purchase practices of public utilities for the 1992-93 period; and

- acted on 91 applications filed by public utilities to issue securities or assume liabilities.

FY 1996 and FY 1997 Program Issues

As the electric industry positions itself for the coming competitive electric market, we are experiencing unprecedented growth in our workload in virtually all areas. We believe that this workload is a consequence of EPAct and that it will increase to even higher levels over the next several years. We believe the effort to reinvent electric power regulation will promote greater consumer benefits and a stronger electric industry. The changes occurring in the industry will shift our regulatory efforts from setting cost-based rates for wholesale power suppliers to allowing market forces to set prices. However, we must safeguard competitive power markets by ensuring open, fair access to monopoly transmission and monitoring for affiliate abuses.

The Commission's current efforts to implement the electric provisions of the EPAct and foster Congress' goal to encourage competitive wholesale power markets require us to address key issues involving:

(1) comparable (nondiscriminatory) open transmission access and stranded costs;

(2) transmission pricing;

(3) alternative power pooling institutions and independent system operators;

(4) regional transmission groups;

(5) electronic information networks; and

(6) utility merger policy.

We are laying the groundwork needed to ensure that increased competition and new ways of doing business will provide benefits to consumers and ensure a healthy electric industry. However, much more needs to be done. In this vein, FY 1996 and FY 1997 will require increased resource levels to provide for a smooth transition to a competitive industry.

Electric customers, like natural gas customers, can benefit if competitive suppliers offer them more choices. Along with the states, the Commission is developing new ways to regulate the electric industry that will take full advantage of competition among electric generators. The new electric regulation will also encourage the growth of market institutions and greater efficiency in transmission. Electric customers will see the same benefits as natural gas customers: competitive prices and reliable services better tailored to their individual needs.

The centerpiece of our new electric regulation is comparable (nondiscriminatory) open-access transmission. Comparable open-access transmission will let all potential wholesale sellers and buyers use the interstate transmission grid in the same way. That is the best way to encourage the continued growth of a fully competitive market for generation.

The success of competitive generation ultimately will depend on more than comparable transmission access. It will also depend on better market institutions and better ways to regulate the industry. With respect to better market institutions, we have issued a notice of inquiry on how power pools may work in the future. Additionally, we have begun the process of developing electronic information networks for transmission data. We are also watching developments in the states and in other countries to see what market mechanisms exist.

With respect to better ways to govern the industry, we are supporting the growth of regional transmission groups (RTGs). Membership in an RTG is open to both those who own transmission and those who need to use the transmission facilities of others for wholesale power transactions. RTGs are ideally suited to deal with transmission issues, such as planning for future upgrades and addressing transmission access on a regional basis. We believe that RTGs have the potential to develop into institutions that can resolve many regional issues that would otherwise come to the Commission.

The following discussion highlights what we are doing and how workload and levels of effort will be affected for FY 1996 and FY 1997.

Comparability and Open-Access Transmission

Comparability Cases. In the Spring of 1994, the Commission began to address the problem of the disparity between transmission service that utilities provide to third parties and the service that they provide to themselves. In the American Electric Power Service Corporation (AEP) case, the

Commission announced a new standard for evaluating claims of undue discrimination. The Commission found that an open-access tariff that did not provide for services comparable to those that the transmission owner provided itself was unduly discriminatory and anti-competitive. This standard has been called "The Golden Rule of Transmission Comparability." Currently, processing such tariffs represents a large and increasing workload involving a new and complex issue.

The Open Access/Stranded Cost Rulemaking. On March 29, 1995, the Commission issued a notice of proposed rulemaking (NOPR) entitled Promoting Wholesale Competition Through Open Access Nondiscriminatory Transmission Services by Public Utilities/Recovery of Stranded Costs by Public Utilities and Transmitting Utilities. This proposal initiates what could be the most far-reaching change in the electric utility industry since the implementation of the FPA. Analysis of comments and development of the final rule will extend well into FY 1996.

The NOPR is based on the Commission's obligation to prevent unduly discriminatory practices in transmission access. It finds that the failure of public utilities to offer nondiscriminatory transmission services through open-access tariffs is unduly discriminatory and anti-competitive. The NOPR further finds that the lack of open access by all public utilities impedes the transition to a fully competitive wholesale electric power market, and will lead to a patchwork of transmission systems — some open and some not — to the detriment of consumers.

The NOPR addresses these findings by proposing that all public utilities file comparable open-access tariffs. The tariffs, to be offered to all sellers and buyers of electric energy sold at wholesale in interstate commerce, would offer wholesale transmission services, including transmission-related support services, on a nondiscriminatory basis to third parties. In addition, public utilities would price separately all wholesale generation and transmission services and take wholesale transmission service under their own tariffs.

To assure that the open-access tariffs promote competition and do not operate in an unduly discriminatory manner, the proposed rule would require public utilities to provide all actual or potential users of wholesale transmission services with the same access to information as the public utility enjoys. This will be done through the development of industry-wide electronic information networks.

To provide a fair transition from a tightly regulated to a competitive generation industry, the Commission also proposes to permit utilities to recover legitimate, prudent and verifiable costs incurred to serve customers under the old rules. These are the costs associated with existing power sales contracts that could be rendered uneconomic if customers were able to leave their existing suppliers through open transmission access. Also known as stranded costs, they may result in complex and controversial proceedings where potentially tens of billions of dollars are at stake.

Following the open-access proposal, the Commission has held technical conferences on the development of real-time information networks, ancillary services (generation service necessary to

the provision of transmission service), application of open access to power pools, pro forma tariffs, and independent system operators. As the Commission implements the final rule, it may be necessary to convene additional technical conferences.

Implementing Open Access. The open-access tariff requirement would be implemented for all public utilities that own or control transmission facilities.

For utilities that voluntarily file open-access tariffs prior to a final rule, the Commission proposes to require any necessary upgrades to meet the substantive requirements of the final rule within a specific time period. For utilities that do not voluntarily file open-access tariffs prior to a final rule, the Commission proposes to put tariffs into effect 60 days after the final rule goes into effect. Rates for the majority of these filings likely will require hearings.

The Commission expects more than 150 open-access tariffs to be either put on file or revised as a result of the rulemaking; in fact, a significant number of these have already been filed. Since these tariffs may be contested, particularly as to rates, processing them will impose a significant workload burden on Commission staff resources.

Implementing Stranded Cost Recovery. Proposed implementation of the stranded cost provisions of the rulemaking would require the processing of a number of new cases. Utilities would be able to request changes to existing wholesale contracts to allow for an exit fee to recover stranded costs. Alternatively, they could seek recovery through transmission rates. They would be required to make a showing that they had a reasonable expectation of continuing to serve a wholesale customer, and then would have to demonstrate how much revenue would be lost should a customer depart, in order to justify the recovery of stranded costs. Cases also may arise when contracts expire, or when customers or utilities need to gain certainty as to their stranded cost exposure for purposes of planning. The Commission would have to review and approve, on a case-by-case basis, any proposal to recover wholesale stranded costs.

Creation of new wholesale entities and incidences of retail wheeling are less predictable than expiration of existing contracts. The process in such cases, however, would require procedural steps similar to those described above.

Implementation of the stranded cost rule would require treatment of issues never before dealt with by the Commission. It would place an entirely new burden on the Commission, as well as add significant new case load.

Economic and Environmental Impacts. The Commission is currently preparing an environmental impact statement (EIS) to assess the economic and environmental impacts of its proposed rule on open-access transmission. A draft EIS was issued for comment in November 1995. The analysis is national in scope — but with significant regional detail — assessing both short term and long term impacts of the proposed open-access rule. The Commission is examining two

alternatives: (1) a base case under which transmission access continues to be implemented on a utility-by-utility basis and (2) a proposed case under which all utilities subject to the Commission's jurisdiction would be required to file open-access wholesale transmission tariffs (and to take service under those tariffs) 60 days after the final rule is published in the Federal Register. The goal is to determine what, if any, environmental impacts may be caused by the proposed rule, with particular attention to the effects of potential increases in air emissions caused by a change in generation fuel mix; e.g., to examine whether mandating open-access transmission would cause more coal to be burned, thereby raising nitrous oxide emissions. We requested comments on the draft EIS be submitted by February 2, 1996; we received nearly 500 pages of comments from 45 parties. We are currently reviewing those comments and expect to issue a final EIS this spring.

Transmission Proceedings

Nondiscriminatory transmission access is essential to create a competitive wholesale market for electric power. Assured open transmission access — that is, access available to all buyers and sellers of wholesale power — is necessary for nontraditional sources of generation to compete effectively with traditional electric utilities. In addition to the open access that would result from implementing the final rule, the Commission's open-access caseload is rapidly growing in other contexts as well, and is presenting issues that have never been dealt with before. It is clear that many complex issues will call for the Commission to expand its staff and build on its technical expertise. The Commission is aggressively promoting regional transmission groups, and they may help limit the additional technical resources needed. However, the Commission is the ultimate forum for industry disputes. Unless the industry can develop workable alternative institutions for resolving technical disputes, additional resources will be required.

Consequently, we expect our growing transmission-related workload to include:

- applications requesting the Commission to order transmission under Section 211, voluntary offers of open-access transmission under Section 205, and the filing of open-access tariffs in compliance with the Commission's proposed rulemaking;
- new approaches to the pricing, terms, and conditions of both firm and nonfirm transmission service;
- proposals for voluntary transmission associations (regional transmission groups) to deal with the increasingly complex technical aspects of enhanced transmission access, dispute resolution, and multi-party system planning; and
- disputes about transmission system reliability and allocation of capacity as existing capacity becomes more fully utilized and more frequently constrained.

Requests for Transmission Service under FPA Section 211. The electricity provisions of the EPAct expanded the Commission's authority to compel a utility to provide transmission service. Specifically, Congress modified Section 211 of the FPA to allow the Commission to order specific transmission services, upon request, if it finds the request is in the public interest and will not unreasonably impair utility system reliability. This provision has given the Commission the ability to reduce sharply the monopoly power that transmission system owners can exercise by favoring the transmission of their own electric generation supplies over the transmission of other generation supplies.

Under Section 211, we have received 25 transmission access applications through February 1996. Of these, ten were granted, three were rejected, three were withdrawn, and nine are awaiting action.

Voluntary Transmission Tariff Applications. Voluntary transmission tariffs of general applicability provide greater assurance against market power than do specific orders under Section 211. However, the open-access service provided must be on a basis that is not unduly discriminatory among transmission users. The Commission is processing an avalanche of voluntary open-access transmission tariff applications, many of which raise comparability issues.

Applications under the Pricing Policy Statement. To serve the long-term purposes of increased competition, reliability, efficiency, and equity, in October 1994 the Commission issued a transmission pricing policy statement, which permits utilities to propose a wide range of nontraditional pricing proposals. These include distance-sensitive pricing, loop-flow pricing, and other innovative concepts. As a result, we are just starting to see innovative proposals that raise new, complex and, hence, time-consuming technical and economic issues.

Regional Transmission Group Applications. In order to capitalize on the significant technical resources of the electric industry, we are encouraging RTGs to help implement transmission services and resolve transmission issues on a regional basis. The Commission believes that properly functioning RTGs will serve the public interest by enabling the market for electric power to operate in a more competitive and, thus, more efficient manner. Further, RTGs provide coordinated regional planning of the transmission system to assure that system capabilities are adequate to meet system demands. RTGs also will decrease the delays that are inherent in the regulatory process, resulting in a more market-responsive industry. Furthermore, RTGs may significantly enhance regional transmission planning by providing a mechanism for cooperation among state commissions and the utilities they regulate. The Commission has expressed a willingness to give deference to agreements reached voluntarily under an approved RTG.

RTGs have the potential to provide substantial benefits to the public and the Commission by relieving regulatory burdens and by providing a forum for consensual agreements within new regional institutions. They can channel the expertise of the electric industry toward resolving technical issues relating to transmission system operations and toward planning the transmission system to meet the needs of all parties.

The first three RTG filings were made by western utilities. The Commission accepted two of the proposals on a final basis, and accepted another conditionally in FY 1995. Our ongoing close interactions with power pools and others in the industry indicate that one RTG filing is being developed, and three other groups are seriously studying developing RTGs. Another five groups are contemplating forming RTGs. We expect that RTG applications and the ongoing oversight of approved RTGs will constitute a considerable workload in FY 1996 and FY 1997.

Electric Power Generation Proceedings

Traditional Cost-Based Rates. We regulate two basic categories of wholesale electricity sales transactions: requirements sales and coordination transactions. Requirements sales are long-term commitments by suppliers of power to meet reliably all or part of the buyer's load. Coordination transactions are sales or exchanges of electricity between utilities for economic purposes and to augment reliability.

We have already seen a significant increase in rate applications for both requirements sales and coordination transactions and, as utilities respond to competitive pressures, we expect additional workload increases through FY 1997.

Even with greater efforts toward conservation and load management, utilities will likely need substantial additional capacity to avoid capacity constraints and reliability problems during the next decade. Some utilities are preparing for this likelihood by constructing new generating capacity themselves or by arranging for purchases of generating capacity from new generating entities. We expect continuing high levels of rate applications from traditional utilities seeking to recover, in wholesale rates, the costs of new construction or purchased power. We also expect significant additional caseload from the adjustments to rate structures that utilities must make to meet the increasing pressures of competition. In addition, as competition develops, contracts are of shorter duration and are renewed or reassigned more frequently, an additional impact on our workload.

Increasingly, traditional utilities are relying on nontraditional sources to satisfy their generation needs. A new nontraditional power sector has emerged to supply the power needs of some traditional electric utilities that are reluctant to undertake new construction. These nontraditional companies — including affiliated power producers, independent power producers, and qualifying cogenerators and small power producers — are constructing generating facilities for the purpose of selling their output to existing utilities. In recent years these sources have comprised over half of all new installed capacity. This change in the way traditional utilities obtain additional power means changes in the types and number of cases we handle.

When a traditional utility buys power from a nontraditional utility, the resulting work for the Commission may involve as many as four proceedings. If the power seller is an EWG, there will be a certification proceeding. In addition, there must be rate proceedings for the power seller, for the utility passing through the increased purchased power costs, and, possibly, for a third-party

transmission supplier. Eventually, as a result of open access and as market-based generation rates become more prevalent, the rate proceedings should become more streamlined. In the interim, however, the Commission will continue to face high levels of workload, as it continues to deal with traditional rate cases and, at the same time, puts into place competitive mechanisms.

Automatic adjustment clauses allow electric utilities to change rates to reflect some cost changes without filing with the Commission. To ensure efficient use of resources, PURPA directs us to review the automatic adjustment clauses in jurisdictional rate schedules every four years, and the energy and fuel purchase practices of utilities using such clauses every two years. We will continue to scrutinize applications to ensure that utility proposals are consistent with our fuel-adjustment clause regulations and accounting procedures, and that costs associated with the Clean Air Act Amendments compliance and power purchases, if reflected in automatic adjustment clauses, are appropriate.

The Regulatory Fairness Act (RFA) amended the FPA to provide up to 15 months of refund protection to ratepayers whose existing rates for electric service are found to be too high. We anticipate that the number of RFA proceedings will continue to increase. Because refund protection lasts only 15 months, we must continue to handle these proceedings as expeditiously as possible.

We expect to continue processing litigated electric rate cases involving:

- performance incentive rate proposals;
- transmission rate levels and design;
- intercompany coordination arrangements;
- continued reasonableness of arrangements under existing power pools;
- interpretation of the terms and conditions of service under power supply and transmission contracts;
- ancillary service issues (e.g., reactive power, load following) associated with transmission-only service;
- post-retirement benefits other than pensions issues;
- nuclear plant decommissioning costs and funding issues;
- premature plant shutdowns;
- costs related to buy-outs and buy-downs of fuel supply contracts; and

- changes in rates related to potential changes in corporate income taxes.

Requests for Market-Based Electric Rates. Traditionally, we have set rates for vertically integrated monopoly utilities based on their costs. Many new entrants into electric markets generally lack market power because they do not own generation or transmission facilities or have a franchised service territory. We often permit them to charge market-based rates. Those affiliated with traditional utilities also may sell at market-based rates, but they present an array of difficult market power, self-dealing, and affiliate abuse issues that are not presented by truly independent power entities. This situation requires extra scrutiny by the Commission, and often requires specific conditions to prevent affiliate abuse.

New entrants in the markets include nontraditional power producers, which may be independent power producers or power producers affiliated with traditional investor-owned utilities.

Power marketers are another new type of entrant. They usually do not produce power, but buy and sell power generated by others. While marketers do not increase the amount of capacity available to meet the needs of consumers, they can contribute to increased market efficiency to the benefit of ultimate consumers. They also increase the Commission's workload. We have authorized most power marketers to charge market-based rates subject to appropriate conditions and have waived some of our regulations for them. The Commission has authorized nearly 200 power marketers thus far, and the number grows daily. Moreover, in FY 1995 the Commission relaxed its reporting requirements for power marketers. This could induce even more entrants into this already burgeoning field. We expect the number of applications by power marketers to rise substantially through FY 1997.

We have developed new analytical procedures for reviewing filings made by applicants requesting approval of market-based prices. They generally do not establish their rates on a traditional cost-of-service basis. We will continue to process market-based rate filings on a case-by-case basis to ensure that the proposed rates are just and reasonable. More experience evaluating market-based rates will help us develop criteria to simplify and standardize the nontraditional supplier's rate application process.

Exempt Wholesale Generators. EPAct directs the Commission to determine, upon application, the EWG status of firms engaged in owning or operating facilities used for the sale of power at wholesale. The purpose of EWG status is to exempt the facility's owners from the requirements of PUHCA. Although many of these EWGs are affiliates of U.S. companies doing business overseas (often in newly privatized electric industries and markets), we expect the class of independent power producers known as EWGs to provide a significant percentage of new domestic generation requirements in years to come.

Through December 1995, we received over 300 applications for EWG status. Even though the Commission's role in acting on these applications is largely ministerial, we expect to see some

increase in workload from EWG applications, until issues concerning statutory interpretation are resolved. Moreover, because most EWGs located in the United States become public utilities when they start making power sales, we anticipate more rate and other applications by EWGs in FY 1997 and beyond, as projects begin operation.

Qualifying Facilities and PURPA Issues. Our experience with cogenerators and small power producers — another class of nontraditional power producers — continues to evolve. PURPA authorizes the Commission to certify small power production and cogeneration facilities as qualifying facilities (QFs) and, in certain cases, to exempt them from some federal and state regulations. PURPA regulations require electric utilities to offer to buy electricity from QFs at a rate that does not exceed the utility's cost of producing the electricity itself or acquiring it elsewhere (i.e., the "avoided cost").

The Commission's PURPA enforcement caseload has increased significantly with competitive pressures in the industry. Many utilities have begun challenging state implementation of PURPA, arguing that they are being required to buy capacity that is above their avoided cost. Others have sought to be relieved of their obligations under QF contracts that have become uneconomic. Yet others have challenged QF status before the Commission in an effort to break contracts with the QFs. The Commission has recently addressed a number of difficult PURPA implementation issues, including cases involving state implementation in Connecticut, California, Illinois, Massachusetts, New York, and Pennsylvania. Other cases are pending.

We continue to address the issues that QF applications raise. These issues include:

- novel uses of waste and renewable resources as fuel for small power production facilities, as well as unusual applications of the thermal output of cogeneration facilities;
- more frequent participation in QFs by electric utilities;
- complex ownership and financing arrangements supporting QF projects;
- more frequent requests for waiver of the Commission's QF regulations;
- challenges to state proceedings concerning power pricing and jurisdictional issues;
- more frequent challenges by local government entities, utilities, and private organizations to applications for QF status; and
- requests that the Commission revoke certification of certain QF projects that fail to meet the Commission's standards.

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Federal Rate Applications. We review the rates for the five federal power marketing administrations (PMAs). The approximately 130 federal hydroelectric projects comprise 23 reporting units, some of which make multiple applications. These filing units may apply to us as frequently as every year, but not less than once every five years. The frequency of such applications depends on the economics of marketing the surplus federal power and transmission services. We estimate that the number of applications will increase slightly as the PMAs respond to competitive pressures.

Corporate Applications

Corporate Restructuring. Utilities are preparing for increased competition in electric markets by reorganizing their corporate structure, merging with their neighbors, and diversifying. To isolate unregulated activities from the regulated utility part of their companies, many utilities have reorganized themselves under a holding company structure. This makes the regulated utility a wholly owned subsidiary of the newly formed holding company. Such restructuring involves a disposition of utility assets requiring Commission authorization.

As the transformation to competitive markets continues, many utilities are expected to create separate transmission, generation, and distribution entities to replace the existing vertically integrated corporate structure. Reorganizations along functional business lines will likely include further consolidations in each functional area with new regional organizations being formed. The mergers and asset dispositions necessary to create the new corporate structures will require Commission authorization.

There are a number of reasons to believe that the pace of corporate restructuring will accelerate. Our proposed open-access rule and actions by many state commissions responding to the changes in electric power markets will lead some utilities to restructure. In the case of some state proposals, these restructurings would be required. Congress is considering several proposals that could affect utilities' corporate structure, such as allowing electric utilities to provide telecommunications services and reforming or repealing the PUHCA.

Utility mergers are becoming more frequent as utilities strive to increase market share, stave off or remedy bankruptcy, or increase efficiency. Merger applications are normally contested and extremely complex. Competitors who view such business combinations as imposing greater barriers to market entry or eroding their relative market share may vigorously oppose mergers and acquisitions. We expect mergers to be a growing workload area in the coming years.

In merger and asset disposition cases, we must determine whether the proposal is consistent with the public interest. This involves considering:

- the effect of the merger on costs and rates;
- the impact the combination may have on the effectiveness of regulation;

- accounting implications of the merger;
- evidence of coercion;
- reasonableness of the purchase price; and
- the effect of the merger on competition.

When the Commission has found that a merger would adversely affect competition or otherwise not be in the public interest, it has imposed appropriate conditions to offset these adverse effects, including requiring open access to transmission systems. Furthermore, as the electric industry has become more competitive, the Commission has found that it is in the public interest to require all merging utilities, and utilities otherwise acquiring interstate transmission facilities, to offer comparable open-access transmission services to mitigate their market power.

We have initiated a notice of inquiry to determine whether our prior evaluation of mergers and standards for approval should be modified in light of ongoing changes in the industry.

Interlocking Directorate Applications. The FPA imposes restrictions on those serving as officers and directors of public utilities. The Commission continues to enforce such restrictions, which require investigation of corporate entities to prevent the potential for adverse effects on the public interest through self-dealing and other abuses. EWGs and affiliated power marketers are increasing the number of inter-utility corporate interlocks of officers and directors. Careful review of interlocking positions is ever more critical as public utilities diversify. We have also maintained jurisdiction over certain interlocks involving registered holding company systems.

Other Issues

Power Pooling Agreements/State Restructuring Initiatives. Power pool agreements are multi-utility agreements for sharing generating capacity reserves and providing a central means of economic dispatch, trading, and transmission of electric power. These complex agreements, a number of which have been approved by the Commission, are difficult to develop and maintain, but they lower costs for the pool members.

The changes occurring in the industry, including the development of nondiscriminatory open-access transmission, are likely to require changes in existing pooling agreements. These will need to be approved by the Commission and will be very resource-intensive proceedings.

In addition to existing power pools, we expect that new power pools will develop to operate transmission centrally, provide for an electricity spot market, and facilitate competition. In December 1995, the California Public Utilities Commission ruled that an independent system operator and separate power exchange be created. The Commission will regulate these new entities because

of their wholesale nature. Their formation will present numerous complex jurisdictional, technical, and market power issues.

The California actions may be the precursor to other new applications resulting from state electric utility restructuring initiatives. Over 40 states have initiated some type of investigation into electric utility restructuring. Many of these could result in forming new institutions or reforming utilities' business activities with some aspect of the restructured activities regulated by this Commission.

To prepare ourselves for these new arrangements and the issues they will bring, the Commission issued an Inquiry Concerning Alternative Power Pooling Institutions under the Federal Power Act in October 1994. This inquiry was subsequently incorporated into the open-access rulemaking and separate technical conferences were held on this and other interrelated issues.

Implementing the Clean Air Act Amendments. The CAAA imposed an obligation on electric utilities to cut in half total industry sulfur dioxide (SO_2) emissions by the year 2000. To minimize SO_2 emission compliance costs, the CAAA created a nationwide market for tradeable SO_2 emission allowances. Utilities must either reduce their annual emissions to their allocation level or purchase allowances from other owners. New generators must acquire allowances from other participants in the allowance market. Allowance trading raises a number of novel regulatory issues, which we are addressing.

We are seeing additional rate applications as utilities seek to reflect in jurisdictional rates the costs of allowances they purchase, use, or sell. Compliance will affect some 60 jurisdictional electric utilities by virtue of their ownership of particular coal-fired generating plants. Since many of these utilities have numerous rate schedules on file with the Commission, hundreds of rate schedules may ultimately require revision. In addition, we believe that the rate schedules of several large holding company systems will require modification to account for the allocation of CAAA compliance costs among the operating companies that make up these systems.

Reporting of Accounting, Financial, and Industry Data. An essential element in our electric program is reliable financial accounting information based on sound accounting principles, which are contained in the Commission's Uniform System of Accounts and uniformly applied to all jurisdictional companies. Financial and operational data collected through filings of Form No. 1 are an integral part of the Commission's regulatory scheme. In FY 1995, we instituted electronic filings for Form No. 1.

In general, we audit each electric utility every 5 to 6 years to ensure the integrity of the accounting data and compliance with the Uniform System of Accounts and related regulations. Accounting data gives us information on investment costs of facilities, the cost and types of capital used to finance such investments, and operating costs and revenue data we use to establish just and reasonable rates and to determine compliance with the rate schedules on file.

The scope of the audits includes a review of billings under automatic adjustment clauses and formula rates. We require companies to make refunds to wholesale customers when the audits disclose improper billings under such rate mechanisms.

Summary of Electric Power Workload and Resource Needs

The electric program workload is burgeoning and will require significant additional resources. Some of the additional workload represents an increase in traditional rate filings. More new participants continue to enter wholesale electricity markets, more wholesale power is traded, and there appears to be a trend towards more and shorter-term power deals. Further, many utilities may merge or otherwise reorganize as power markets evolve, which will increase the Section 203 filings the Commission receives.

We also have a developing nontraditional caseload as a result of the EPAct and the emergence of competition in the wholesale bulk power market. Examples of this workload are requests for transmission service under FPA Section 211, EWG certification requests, requests for market-based generation rates, and regional transmission group filings. The complexity of cases is increasing, and more cases raise issues of first impression.

At the same time, the Commission is launching several generic policy examinations of major issues confronting the electric power industry. Of these, the most significant is the recent proposed rulemaking on nondiscriminatory open-access transmission and stranded cost recovery.. Issuing a final rule will involve several major efforts, carried out in parallel, on electronic information networks, pro forma tariff design, ancillary services policy, power pooling policy, and environmental impacts. Implementation of the final rule will require putting compliance tariffs into effect for more than 150 public utilities 60 days after publication of the final rule.

The rule will result in a surge of formal compliance filings; workload to complete implementation will remain high for several years, as it did when the Commission restructured the gas industry. For example, many public utilities may file superseding tariffs, or customers may challenge aspects of the compliance tariffs. Many of these filings will involve innovative transmission pricing proposals and will require new pricing policy development. Implementation of comparability for power pools will be a complex, and potentially resource-intensive, effort — particularly if the Commission is required to institute individual Section 206 complaints against existing power pools. The rule will also result in many requests to recover stranded costs. Such filings are likely to be contested and set for hearing. Accordingly, implementation of the open-access rule will require more electric program staff, into FY 1997 and beyond.

The Commission also began an inquiry into alternative power pooling institutions, and at least one state (California) has required its jurisdictional utilities to establish an independent transmission system operator and a power exchange. Other states and regions are considering different ways of organizing their electric power markets. Many states are considering retail access, and the

Commission may be called upon to set rates for retail transmission. As alternative power pooling and market institutions develop, the Commission will have to address difficult cost allocation, jurisdictional, and other regulatory issues. The Commission may also have to develop different policies and procedures tailored to the characteristics of alternative power pooling arrangements in each region. The time and staff required to deal with these new issues and to interface with state and regional organizations will increase.

We anticipate that the Commission will be called upon to undertake new activities as the electric power industry continues to evolve. The Securities and Exchange Commission has called for PUHCA repeal and for us to take on many of the consumer protection functions that it currently performs. Legislation (S. 1317) to repeal PUHCA was introduced in the Senate in August 1995. It seems likely that further changes in the electric industry, including potential industry restructuring, may call for new generic inquiries in the next few years that we cannot now specifically identify. Because of the uncertainty of these potential responsibilities, no resources have been requested in this budget for PUHCA reform.

Over the long term, electric program staffing needs may decrease from the higher levels projected for the next few years. Open access, competition, and new institutions in the industry should ultimately reduce the Commission's electric workload. The Commission may rely less on cost-based regulation of generation and more on market-based pricing. New institutions, such as RTGs and poolcos, may evolve to substitute for some aspects of our regulation of the industry. But, whatever our workload requirements may be 5 or more years into the future, it is clear that the electric program needs additional staff and resources now to cope with the current surge in workload and to continue to meet the challenge of fostering the development of a vibrant and fully competitive market for wholesale electricity.

It is vitally important for the Commission to have the necessary resources to help shape the new electric power supply industry. Literally hundreds of billions of dollars are at stake. With a relatively small investment, the Commission will be able to provide decisive leadership in this critical time of industry transition. Every consumer of electricity has a right to expect us to meet the crucial responsibility of consumer protection while promoting a healthy, reliable industry.

SUMMARY ELECTRIC POWER WORKLOAD

Receipts

	FY 1994[3] Actual	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Rates and Transmission	1,186	2,274	3,608	3,767
Other Electric	1,024	1,203[4]	1,028	1,063
TOTAL	2,210	3,477	4,636	4,830

Completions

	FY 1994[3] Actual	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Rates and Transmission	1,551	2,088	3,600	3,762
Other Electric	981	1,105	1,045	1,070
TOTAL	2,532	3,193	4,645	4,832

Year-End Pending

	FY 1994[3] Actual	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Rates and Transmission	608	794	802	807
Other Electric	369	467	450	443
TOTAL	977	1,261	1,252	1,250

[3] FY 1994 receipts and completions are included in this table to provide a fuller picture of the growing substantive workload in electric power.

[4] Includes 190 one-time small power filings pursuant to the Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990.

HYDROPOWER
Operating Expenses
($ in Thousands)

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Request
FUNDING	$56,949	$52,300	$53,429
FTEs	455	454	444

Overview

Hydropower is a domestic, renewable resource that offers an abundant, clean source of electric energy. The 1,651 hydropower projects we regulate represent over half the Nation's hydropower energy generation. Hydropower makes up 96 percent of our total renewable energy production and provides about 13 percent of the country's electric capacity. In FY 1994, hydroelectric production was about 244 billion kilowatt-hours, the equivalent of about 410 million barrels of oil or 100 million tons of coal. Use of hydropower avoids the consumption of oil from foreign sources; this contributes to national security and advances the goal of energy self-sufficiency. Hydropower also makes a significant environmental contribution in that the avoidance of coal burning prevents the annual discharge into the atmosphere of up to 7.7 million tons of particulate matter.

The Commission regulates non-federal hydropower for the benefit of the public, considering all resources and beneficial uses of the Nation's waterways. In recent years, the focus of the Commission's hydropower program has been the relicensing of the 157 licenses that expired in 1993. As that effort draws to a close — we anticipate most of these relicensing cases will be completed by the end of FY 1996 — our focus will turn to ensuring compliance with the terms and conditions of these new licenses. As a result, staff will be transferred from licensing to the compliance and dam safety activities. In addition, because of increased efficiencies in how we perform our compliance and safety activities and the need to use personnel in other programs, the FY 1997 request includes 10 fewer FTEs than FY 1996 for the hydropower program.

In spite of fewer FTEs devoted to this aspect of the Commission's work, we expect to continue to respond to our stakeholders' interests and to the changing role of hydropower in the Nation's energy

future. In doing so we will continue to evaluate the need for new capacity development and increased efficiency at existing hydropower projects, while considering environmental requirements. In doing so, we focus on:

- encouraging and ensuring comprehensive, multipurpose uses of the Nation's water resources, while protecting the environment, mitigating harmful impacts, and enhancing resource values;
- reducing regulatory delay and eliminating as much uncertainty as possible for water-resource developers, federal and state agencies, and nongovernmental organizations;
- ensuring compliance with all Commission authorizations and environmental laws;
- ensuring efficient, integrated operations at all licensed and exempted projects;
- encouraging public participation and input into our processes;
- employing licensing, relicensing, and compliance processes that consider the concerns of other federal agencies, state governments, and the public;
- carrying out a dam safety inspection and evaluation program to ensure that the aging population of dams meets rigorous safety requirements and current dam safety standards;
- ensuring that the recreational facilities at licensed projects are adequate and safe for public use;
- improving dam safety engineering guidelines to ensure appropriate, cost-effective approaches to dam safety remediations;
- requiring full tests of emergency action plans; and
- providing guidance to the hydropower community to help identify and reduce the occurrence of common compliance problems.

We look for ways to facilitate our review and decisionmaking on water resource projects, while protecting environmental and other values. This ensures that projects are developed and operated in the public interest. Among our highest priorities are initiatives to:

- complete, or near completion of, the relicensing workload from the projects whose licenses expired in FY 1993;
- improve our licensing and relicensing processes;

- strengthen compliance and dam safety programs;
- resolve disputed issues through settlements and other means of alternative dispute resolution;
- continue to encourage development of additional hydropower capacity through project efficiency upgrades;
- continue to pursue cooperative working relationships with federal and state agencies; and
- reduce pending workload levels.

FY 1995 and FY 1996 Program Achievements

Hydropower Licensing. During FY 1995, the hydropower licensing area had a number of important achievements. We:

- continued processing the relicense applications from licenses that expired in 1993. For this group of 157 applications we issued 19 licenses, completed 19 additional project environmental assessments (EAs), issued 6 single- and multi-project draft environmental impact statements (EISs) and 1 final EIS, and initiated the preparation of 21 other environmental documents;
- took final action on applications for 27 original licenses and 22 relicenses, including 19 of the licenses that expired in 1993;
- issued a policy statement on the use of reserved authority in licenses to ameliorate cumulative impacts, stressing the importance of resolving cumulative impact issues at the licensing stage to the extent feasible;
- issued a policy statement on project decommissioning at relicensing that concluded: (1) under limited circumstances, the Commission has the authority to deny a new license at the time of relicensing; (2) when a project required to be licensed will no longer be licensed, it must be decommissioned in an appropriate manner; and (3) where specific facts warrant that result, the Commission may impose conditions in a license that require pre-retirement planning and funding;
- changed our method of doing project economic analyses in light of significant competitive changes in the electric industry, and clarified the role of economic analyses in licensing proceedings;
- conducted 16 negotiations with fish and wildlife agencies under Section 10(j) of the FPA;

- prepared four river basin EAs in cooperation with the U.S. Forest Service for proposed hydropower projects to be located on lands managed by the Forest Service;

- worked with the Council on Environmental Quality and five other agencies and nongovernmental organizations to prepare a Cumulative Effects Handbook that will be useful in analyzing hydropower projects;

- assisted several potential applicants, prior to application filing, in developing third-party, applicant-prepared EAs and EISs, thereby reducing the time required for staff review after filing;

- resolved a dispute over entrainment and mortality studies that was interfering with timely processing of Niagara Mohawk Power Company's pending relicense applications;

- assisted in settlement talks that resulted in settlement agreements being filed for the Deerfield River Project in Vermont and Massachusetts, the relicensed project with the greatest installed capacity of the 157 licenses that expired in 1993, and for six Saco River projects;

- prepared the Saco River Basin draft EIS, covering two relicense and one exemption application, providing information for future Commission action on the multi-project, river-basin-wide settlement agreement on fish passage improvements; and

- improved policy coordination between the Commission and other federal agencies.

Dam Safety and Inspections. During FY 1995, we accomplished the following in the dam safety and inspections area:

- completed 600 dam safety evaluations and 3,018 inspections;

- completed 43 emergency action plan tests at major multi-development projects;

- conducted state-of-the-art seismic evaluations to assess the merit of new seismic theories;

- conducted seismic analyses to evaluate embankment dams constructed by hydraulic fill methods and those embankment dams founded on loose, potentially liquefiable soils;

- refined procedures for developing: (1) regional Probable Maximum Precipitation (PMP) values and resulting Probable Maximum Floods associated with dam safety reviews, and (2) site-specific PMP values that have resulted in reducing or eliminating dam safety remediation measures;

- required safety modifications at more than 100 dams;

- reduced the number and scope of dam safety modifications, without compromising the public's safety, that resulted in a savings of over $25 million for project owners;

- provided technical assistance on dam safety to the Nuclear Regulatory Commission and DOE;

- provided training related to emergency action planning for dam emergencies to state dam safety officials and to owners of dams that fall under state jurisdiction; and

- issued an Engineering Guidelines chapter on Monitoring and Instrumentation of Dams; began work on new chapters for Existing Arch Dams, for Water Conveyances, and for Unique Types of Dams; and reviewed and began revisions to existing chapters on Embankment Dams, Gravity Dams, Probable Maximum Flood, and Foundations, consistent with staff studies and current changes in state-of-the-art procedures and methodologies.

Project Compliance and Administration. In the project compliance and administration area, we:

- completed 40 EAs for license or exemption amendments, surrender of licenses, and exemption revocations;

- initiated preparation of 4 EISs;

- completed a final EIS and authorized construction of a water supply withdrawal to serve Virginia Beach from the Lake Gaston and Roanoke Rapids Project No. 2009;

- completed action on about 1,200 post-licensing amendment items;

- reviewed approximately 25 reopener article proceedings (the re-evaluation of existing projects to determine the need for environmental protection measures not anticipated during original licensing);

- completed 24 compliance audits;

- issued a final rule reforming hydropower administrative annual charges;

- approved 8 efficiency upgrades at licensed or exempted projects totaling 25.4 megawatts of additional capacity;

- assessed more than $800,000 in civil penalty fines for violations, including failure to maintain safe public recreational facilities, install required gauges, and maintain required minimum flows and dissolved oxygen levels;

- completed headwater benefits determinations for 5 river basins, resulting in $0.9 million in headwater benefits assessments, in addition to $6.0 million in annual assessments, for a total assessment of $6.9 million;

- initiated the use of a PC-based version of the Commission's Headwater Benefits Energy Gains computer model;

- evaluated the effectiveness of compliance staff presence in a regional office to address emerging environmental issues, and reviewed the need for such presence in all regional offices;

- integrated geographic information system technology into navigation studies in evaluating project jurisdiction;

- completed the first third-party contractor-prepared post-licensing EA, which reduced time required to process the case and resulted in a savings to the Commission in staff and contract resources;

- completed license transition actions with 11 project owners and interested resource agencies, in which the owners were given detailed information on their license requirements to help ensure future compliance; and

- evaluated the feasibility of the compliance liaison activity, which supports small project licenses and exemptees to minimize compliance violations.

During the first quarter of FY 1996, we have:

- issued 5 new licenses;

- issued 12 environmental documents (6 draft EISs, 2 draft EAs, 1 final EIS, and 3 final EAs) involving 24 projects, 18 with licenses that expired in 1993;

- participated in 4 settlement meetings involving 12 relicense applications;

- requested comments on the National Hydropower Association's petition for revisions to the Commission's relicensing process;

- issued 11 EAs for proposed modifications at licensed or exempted projects;

- assembled a multi-disciplinary license transition team and conducted 11 pre-license issuance reviews of draft orders in the Wisconsin River basin to help ensure that owners of recently

licensed and relicensed projects clearly understand the terms and conditions of their licenses, their responsibilities, and the steps needed to achieve and maintain compliance;

- approved an efficiency upgrade at a licensed project;
- initiated 21 headwater benefits studies and 3 three headwater benefits determinations;
- evaluated interfacing project exhibit aperture cards with a geographic information system;
- conducted 191 dam safety inspections;
- completed 353 dam safety engineering evaluation studies; and
- served on subcommittees of the Interagency Committee on Dam Safety, tasked to review and update the "Federal Guidelines for Dam Safety" published in 1979.

FY 1996 and FY 1997 Program Issues

In FY 1996 and FY 1997, we plan to:

- complete our multi-year relicensing activity for projects whose licenses expired in 1993;
- begin the transition to the post-relicensing phase for the licenses that expired in 1993, involving increased license administration with a concomitant shift of resources;
- implement the Commission's policy statements on decommissioning and cumulative impact reopener articles;
- increase analysis of cumulative impacts of multiple projects and participate in settlement conferences;
- expand staff involvement before applications are filed by helping to implement new third-party contracting provisions, including holding scoping meetings and conducting site reviews, and resolving conflicts between agencies and applicants;
- continue to analyze water resource projects consistent with achieving comprehensive development, protecting environmental resources, maintaining dam safety, and ensuring compliance with authorizations we issue;
- explain our approach to licensing, relicensing, and post-licensing administration through interactive activities and outreach meetings with members of the public, resource agencies, and the hydropower industry;

- continue to address the many environmental issues at projects that were built and began operation more than 30 years before the enactment of the NEPA;
- increase the frequency of inspections of low hazard potential dams to help avoid dam failure and subsequent environmental and economic loss;
- expand participation in activities of the dam safety community to develop improved technical tools and procedures for analyzing the stability and adequacy of dams, determining economical remedial measures, and reducing dam safety costs;
- continue to train licensees and exemptees on emergency action planning and testing and require comprehensive testing of emergency action plans with participation by emergency preparedness agencies;
- improve the Engineering Guidelines consistent with state-of-the-art advances and developments;
- meet more often with other federal agencies and technical groups to discuss dam safety issues and coordinate improvements to dam safety programs in the U.S. through the Interagency Committee on Dam Safety;
- improve program efficiency through an investigation of automated data filing, continued development of a consolidated database and management information system, and continued development of a geographic information system;
- investigate and bring into compliance violations of hydropower licensing and exemption requirements;
- evaluate the jurisdictional status of unlicensed hydropower projects and start the licensing process for those that are required to be licensed;
- encourage licensees to undertake efficiency upgrades;
- require licensees to modify project facilities and operations to accommodate environmental concerns identified by the Commission and natural resource agencies;
- continue efforts to improve coordination with other federal agencies; and
- work with our licensees during the critical 6 to 12 months after license issuance to improve compliance.

Hydropower Licensing

We issue three types of authorizations for hydropower development: preliminary permits, licenses, and exemptions from licensing. Permits allow holders to study the development potential of sites for three years with the exclusive right to apply for a license or an exemption during the permit's term. Original licenses are effective for up to 50 years. We issue exemptions to certain small projects in perpetuity; exemptions do not confer on the holder the power of eminent domain, and exemptees are subject to fish and wildlife conditions imposed by federal and state fish and wildlife agencies.

Relicensing. Our licensing workload continues to be affected by the 157 relicense applications for projects whose licenses expired in 1993. Throughout the processing of each relicense application, we ensure agency and public participation and open and thorough environmental reviews. Relicensing has brought many participants to our proceedings who raise a wide variety of issues. We address new and difficult questions on project design, operational changes, and the balancing of competing interests. Although we expect to complete processing the majority of these 157 relicense applications by the end of FY 1996, work on some cases will continue into FY 1997 because of difficulties encountered in resolving very contentious issues. As we complete work on these cases, we will focus more on the pending relicense applications for licenses that expired or will expire in other years, using experience gained with increased public and agency participation and in handling issues associated with the group of 157.

Original Licensing. As we reduce our pending relicensing workload, we will devote more time and effort to applications for original licenses. Our original licensing actions enable undeveloped, renewable power to be harnessed, and provide opportunities for recreation and other public benefits. The process for these applications is very similar to the one used for relicense applications. By the end of FY 1997, we expect to significantly reduce the number of pending original major license applications. In processing these applications we address cumulative as well as site-specific resource issues.

Increased Prefiling and Postfiling Staff Involvement. Federal and state agencies, Native American tribes, and the public can and do participate extensively in the licensing process. This participation begins as early as three years before a license application is filed, when the potential hydropower developer follows the prefiling consultation requirements in our regulations.

These consultation requirements ensure that an applicant considers the broad range of key environmental, engineering, and economic factors in preparing an application. The studies conducted by the applicant help us evaluate the proposal and expedite processing once we receive the application.

Commission staff will continue to be involved throughout the pre- and post-application filing periods. They will, if appropriate, attend meetings among applicants, agencies, and the public during the first

and second stages of prefiling consultation to help resolve disputes and facilitate the preparation of acceptable license and relicense applications. We expect to substantially shorten the processing time for such applications.

Environmental Requirements. Federal statutes mandate that we consider and mitigate environmental impacts of hydropower projects. We independently analyze likely environmental effects of proposed hydropower development and proposed changes to existing projects.

To meet these requirements, we prepare environmental assessments (EAs) and environmental impact statements (EISs) or supervise their preparation by contractors. To ensure that we examine all important environmental issues, we go through a public scoping process for all license and relicense applications and appropriate post-license amendments. Both EAs and EISs become part of the Commission's record used to approve or deny licenses, relicenses, and exemptions. These procedures help ensure appropriate development of the Nation's hydropower resources, giving equal consideration to environmental values.

Commission staff also reviews every license and relicense application in accordance with the comprehensive development standard of Section 10(a)(1) of the FPA. We evaluate the potential for proposed or existing projects, in combination with other developments in a basin, to create beneficial or adverse impacts. NEPA documents for projects in the same basin are linked so we can process pending cases quickly and comprehensively. We also review the need to reopen existing licenses for possible amendment proceedings related to cumulative impacts.

The FPA requires that we build a record that includes analyses of proposed projects' consistency with comprehensive plans prepared by federal or state agencies. To date, approximately 660 plans have been filed, and federal and state planning and resource agencies continue to file additional plans.

Under the Endangered Species Act, the Commission must ensure that licensed and exempted projects do not jeopardize the existence of endangered or threatened species or destroy or adversely modify critical habitat. With over 950 species now listed, and about 300 more for which listing appears warranted, potential conflicts at proposed, licensed, and exempted projects are expected to increase dramatically. Endangered species issues require extensive analysis, as well as consultation with resource agencies, to reach resolution.

The Supreme Court's 1994 decision in *PUD No. 1 of Jefferson County v. Washington Department of Ecology* broadly construed the ability of the states to impose conditions on hydropower licenses, pursuant to Section 401 of the Clean Water Act. This decision has increased the states' ability to impose on hydropower projects conditions affecting flow and other issues.

Third-Party Contracting. The Energy Policy Act (EPAct) authorized the Commission to allow applicants — at their election — to employ outside contractors to prepare environmental documents. The third-party contracting authority can be used by those applicants wishing to fund the preparation

of the environmental document during the prefiling stage of a license application. The EPAct authority is limited to applications filed after October 24, 1992, the date of enactment. However, in response to a Commission request, the Office of Management and Budget clarified that the Commission may implement a voluntary third-party contracting program for *all* applications.

Several projects are in the very early stages of the third-party contract process. We expect a lower level of third-party contract activity in FY 1997, because of the applicants' risk in committing significant financial resources during the prefiling process, except possibly in relicensing cases where additional capacity is proposed.

If the provisions of the third-party contracting authority are used routinely by applicants, there could be a reduced need for contract funds in the future. However, we do not know the extent to which third-party contracting will be requested by applicants.

Interagency Cooperation. Under Section 10(j) of the FPA, we must include in all hydropower licenses specific conditions to protect, mitigate damages to, and enhance fish and wildlife resources. We must base the conditions on recommendations from fish and wildlife agencies under the Fish and Wildlife Coordination Act. In FY 1997, we expect to conduct 32 Section 10(j) processes. In this process, we:

- review fish and wildlife recommendations;
- make a preliminary determination of any inconsistency between fish and wildlife recommendations and applicable law (including notifying all parties of the determination);
- obtain responses of interested parties; and
- hold meetings at our discretion or as requested by any interested party within 75 days of a preliminary determination.

During FY 1997, we will continue to expand our cooperation with federal and state resource agencies to reduce needless duplication and processing time for environmental reviews.

Dam Safety and Inspections

We are responsible for inspecting approximately 2,600 dams and related water retention structures. These are dams under license or exemption and dams at projects we have found to need a license or exemption. Our dam safety program complies with the Federal Guidelines for Dam Safety issued under a Presidential Executive Order. We developed our dam safety program to ensure that the dams under our jurisdiction are properly constructed, operated, and maintained. We review all new license, original license, and exemption applications that involve existing dams to evaluate dam and project safety.

Over two-thirds of dams that are required to be licensed are more than 50 years old. As dams age, concern over their safety and integrity grows. Therefore, project oversight and a periodic inspection program are extremely important.

Our periodic inspections verify the structural integrity of dams. They identify necessary maintenance and remedial modifications. Inspections during project construction (1) ensure that the project, as actually built, complies with the approved design, (2) aid in the discovery of unexpected conditions (such as unknown foundation features), and (3) provide staff an opportunity to determine whether design changes are necessary. Inspections also ensure that projects get the maintenance they need and help ensure that licensees comply with license provisions. Inspections safeguard the continued operation of projects, which enables them to continue to produce a variety of multipurpose benefits.

Through inspections we identify safety problems at projects before they lead to dam failure or jeopardize public safety. This aspect of the program:

- prevents the loss of life and property damage;
- identifies maintenance needed to avoid dam safety problems;
- maintains electrical capacity and energy production;
- safeguards water for domestic, industrial, and irrigation use;
- ensures flood control capabilities;
- protects the environmental values of the project; and
- protects the public's safety during recreational activities.

We conduct periodic inspections from the time we receive an application for a proposed project through project operation. These include prelicense, construction, operation, exemption, public safety, special, and independent consultant inspections. We also make unscheduled inspections to investigate potential dam safety problems, unlicensed projects, complaints about the construction and operation of projects, safety concerns related to natural disasters, and compliance issues.

In addition, economic and environmental concerns have increased the need for more frequent surveillance of low hazard potential dams. While failure of a low hazard potential dam presents a low potential risk to life and property, experience has demonstrated that incidents at these dams can cause significant economic and environmental impacts.

Environmental and Public Use Inspections. The reservoirs at non-federal hydropower projects provide extensive recreational opportunities for the general public. Recent estimates show that about

100 million recreation-visitor-days are spent each year at licensed and exempted projects. The safe use of the projects by the public is an important Commission concern.

Environmental specialists conduct environmental and public use inspections of projects with major recreational developments. The focus of the inspections is protection of the environmental resources, ensuring that the recreational facilities are operated safely, and confirming that the project is in compliance with the environmental and public safety requirements of the license or exemption.

Periodic Inspection by Independent Consultant. Commission regulations require that an independent consultant inspect and evaluate all major licensed and exempted dams every five years. The consultants conduct site inspections as well as evaluate or confirm the adequacy of the spillway capacity and structural stability of the dam. We use the results in conjunction with annual inspections to ensure the safe operation of the project.

Dam Safety Engineering Evaluations and Studies. Our dam safety program requires engineering reviews, evaluations, and studies during construction, operation and maintenance of dams and related facilities to ensure their long-term structural integrity. These include:

- review of plans and specifications for new project construction, major dam safety modifications, and repairs;
- engineering evaluations to ensure dam safety under all potential loading conditions, including predicted seismic and hydrologic events;
- review of design analyses for dam safety improvements;
- review of requests for exemption from the requirements for emergency action plans and independent consultant inspections; and
- engineering evaluation of significant hazard potential projects.

Determining the impact on dams of natural disasters, such as earthquakes and floods, is an important and continuing effort. As we obtain and analyze better information on seismicity and hydrology, we will continue to develop state-of-the-art procedures for evaluating dams. Dam safety and inspections staff will direct dam owners to conduct the necessary studies at each stage of the work.

Earthquakes, like the one in California in late 1993, yield valuable information that can be applied to dam construction. We will apply this information when investigating and analyzing embankment dams constructed by hydraulic fill methods and those founded on loose, potentially unstable soils. In addition, we evaluate floods, such as the one in Georgia last year, to determine whether we need to make changes to our procedures for analyzing dams under flood conditions.

The criteria used in, and the analytical approach applied to, dam safety evaluations are important elements of a sound dam safety program. To provide guidance to our engineering staff and dam owners and their consultants, we publish *Engineering Guidelines for the Evaluation of Hydropower Projects*. We expect to publish additional chapters to *Engineering Guidelines* on such matters as arch dams, water conveyance facilities (penstocks, canals, and other conduits), other dams not presently included in the guidelines, and roller compacted concrete dams.

Emergency Action Plan Reviews and Tests. Since 1981, we have required licensees and exemptees to submit an Emergency Action Plan (EAP) for projects found to have the potential for the loss of life and property in the event of dam failure. After the regional office reviews and approves the plan, the licensee or exemptee updates the plan annually. Every five years, licensees must update and refile the plans. This includes coordinating with state and local emergency preparedness agencies. This program also assists the state and local emergency preparedness agencies in testing and improving their own emergency plans to fulfill their responsibilities, thus increasing the ability to save lives under emergency conditions. We verify that plans are current during our periodic inspections.

In addition to an annual test consisting of notification of all necessary entities in case of a project emergency, each licensee is required to conduct a functional exercise of an EAP every five years to test the readiness of licensee personnel and to involve state and local emergency preparedness agencies responsible for evacuation. These exercises are consistent with the national policy guidance of the Federal Emergency Management Agency on emergency preparedness regarding natural disasters. The effectiveness of emergency planning is a critical element in any overall dam safety program.

Dam Safety Modifications. Our staff identifies the need for a dam safety modification through inspection and evaluation, an analysis of an independent consultant's report, or on the basis of an owner's analysis. We base modification decisions on field investigations, laboratory tests, and engineering analyses in accordance with our *Engineering Guidelines*, and review any further investigations and analyses to solve the problem. After approving a design for a modification, we inspect the actual work. These inspections ensure the use of approved construction methods, ensure that the construction conforms to the design, and help us determine if site conditions warrant changes in design or construction methods. Project operators may need modifications to:

- increase the capacity of spillways to handle floods;
- provide overtopping protection for embankments during unusual flood events;
- repair weathered concrete, particularly at slab and buttress dams;
- repair embankment dams subject to liquefaction resulting from seismic activity; and

- improve the structural stability of dams, especially those on complex foundations with weak geologic features.

Project Compliance and Administration

We monitor and investigate compliance with the FPA, Commission regulations and orders, and the terms and conditions of more than 1,800 licenses, exemptions and preliminary permits. Meeting requirements for dam safety, public safety, and environmental reviews protects life, health, property, and the environment. We make sure licensees and exemptees comply with our policies to realize the multipurpose benefits of water resource developments.

The compliance program includes investigating actual incidents or allegations of noncompliance with our requirements; ensuring that our decisions are based on sound technical, environmental, and engineering analyses; and taking actions to resolve instances of noncompliance. When compliance violations merit assessments of civil penalties, we prepare notices of proposed penalty, assessment orders, and settlement agreements. We also evaluate project compliance to see what license conditions or changes are necessary during the relicensing process to reduce compliance problems.

Compliance Monitoring. All licenses and exemptions contain conditions regarding the construction and operation of hydropower projects to meet environmental protection and public safety requirements. Monitoring compliance with the complex terms and conditions in the large number of licenses and exemptions we issued in the 1980s continues to be a significant part of the compliance workload. Moreover, as we act on the 157 relicense applications from projects whose licenses expired in 1993, the project compliance and administration workload will swell because of the many post-licensing filings needed to meet procedural, structural, operational, environmental, and other requirements of the relicenses.

Our compliance staff maintains regular contact with licensees, exemptees, federal and state agencies, and environmental organizations. This improves communication and ensures better compliance monitoring.

We initiate a compliance action when a licensee or exemptee does not:

- construct the project as specified within the required time frame;
- operate the project within the requirements of the authorization;
- maintain the project as required by the FPA and our rules and regulations; or
- perform other actions we have required.

Compliance Actions. As part of our compliance efforts, we:

- issue overdue action letters for items that are more than 30 days overdue, advising the licensee that (1) it is in violation, and (2) it should submit the items or request an extension of time;
- issue to licensees letters of inquiry regarding concerns or complaints and require the licensee to respond;
- issue directives that (1) require licensees to immediately perform actions, and (2) may notify licensees that they are in violation and subject to penalty or other enforcement actions;
- issue compliance orders pursuant to Section 31(a) of the FPA when licensees have received proper notice and have failed to comply;
- revoke licenses and exemptions for violations of final orders; and
- assess civil penalties.

Hydropower License Compliance Tracking System (HLCTS). Automation has improved our compliance efforts. The HLCTS documents every filing requirement of each license, exemption, and preliminary permit, and allows us to efficiently monitor compliance with our regulations and orders.

Compliance Audits. Compliance audits are field evaluations we conduct with multi-disciplinary teams. We tailor these teams for specific compliance problems. Compliance audits help licensees and holders of exemptions understand and comply with the requirements of their licenses and exemptions. This program initiative extends beyond the traditional regulatory posture of responding to filings and uses Commission expertise to help project owners comply with the conditions that protect significant resources.

License Transition Team. License transition teams are multi-disciplinary teams that meet with the owners of recently-licensed and relicensed projects and interested parties to ensure that the licensees clearly understand the many new terms and conditions of their licenses, and the steps needed for them to achieve and maintain compliance.

Compliance Liaison Activity. This program was established to work with licensees and exemptees of small projects. The focus of the program is to minimize compliance violations by providing an additional layer of support to those who need it the most, because of their inherent small operations and possible lack of disposable funds. We hope to achieve this goal by ensuring their understanding of all aspects of the license or the exemption, providing a Commission contact, and ultimately lowering their regulatory and administrative burden.

Unlicensed Constructed Projects. There are some operating hydropower projects that may need to be licensed in accordance with Section 23(b)(1) of the FPA. These unlicensed constructed projects may pose public safety and environmental concerns. We identify these projects through record searches and information from other federal and state agencies and individuals. Each unlicensed project requires investigation, including a site inspection, to determine whether licensing is required, in which case, we require the owner to apply for a license or exemption within a specified timeframe.

Headwater Benefits Studies. Section 10(f) of the FPA requires assessment of headwater benefits. Benefits are the additional hydropower production made possible by the regulation of streamflow by federal reservoirs and Commission-licensed projects located in the headwaters of river basins.

These studies, for which we use sophisticated computer models, determine the charges we levy against owners of hydropower projects deriving benefits from upstream federal projects. The owners of the downstream projects must pay for the benefits received, as well as for the costs of conducting the studies.

Headwater benefits assessments produce revenue that helps pay for federal water resource projects managed by the Corps of Engineers, the Bureau of Reclamation, and the Bonneville Power Administration. In FY 1997, we expect to generate $7 million in revenue from annual headwater benefits bills and complete eight initial headwater benefits determinations that should provide additional revenue to the U.S. Treasury of about $5 million. We also expect to begin five additional headwater benefits investigations.

Post-Licensing Amendments. The significant rise in demand for water resources over the past several years has substantially increased requests to modify licensed hydropower projects. Modification requests from licensees, members of the public, and resource agencies commonly entail changes to project structures or operations to protect or enhance a variety of important environmental resources. Through reopener articles in the licenses, the Commission reserves authority to require, after notice and opportunity for hearing, such changes when warranted.

Regional Compliance Staff Presence. We will determine how best to develop a specialized staff presence in the regional offices. Staff will be placed where local issues and regional concerns warrant continued, significant staff involvement on resource issues involving multiple projects, cumulative impact analyses, and the coordination of Commission regional responses to Endangered Species Act requirements.

Such issues include implementing major fish restoration programs, such as the ongoing Atlantic salmon restoration program in the Northeast, and addressing the dramatic declines in the anadromous fish stocks in the Pacific Northwest. Current anadromous fish stocks in rivers and tributaries from Northern California to Washington State are a fraction of historical levels, which has resulted in continuing petitions to list these fish species as threatened or endangered. The listing of three salmon

species in the Columbia/Snake River basin alone has caused unprecedented impacts to hydropower production in that basin, with generation loss estimated in the millions of dollars. There are over 60 more fish species under consideration for possible listing in the Northwest alone. This undoubtedly will have significant impacts on non-federal hydropower development.

Competition for limited water resources is similarly evidenced by such proceedings as the San Francisco Bay Delta proceeding. This proceeding involves potential reallocation of water resources from various uses, including municipal, irrigation, and hydropower, to enhance the Bay ecosystem. Over 150 projects are potentially affected by the Bay proceeding.

The substantial increase in population in the southeastern part of the country creates ever-increasing demands for water supplies, which are frequently sought from large-volume reservoirs created by non-federal hydropower developments under license. As the water supply demands increase, conflicts between competing uses and users materialize.

Summary of Hydropower Workload and Resource Needs

FY 1997 will be a transition year for workload in the hydropower program. The general shift will be away from relicensing, which has been our focus for several years, toward increased post-licensing activities involving license administration, compliance, and dam safety matters. This will necessitate transferring staff from licensing to compliance and dam safety activities. We anticipate shifting personnel in FY 1996; by FY 1997 the transfer of staff from licensing to compliance will enable the Commission to respond to the growing post-licensing workload. By the end of FY 1997, we expect to have completed the 157 relicense applications from projects whose licenses expired in 1993.

Hydropower Licensing. We expect a significant reduction in the pending relicensing workload by the end of FY 1997 due to the completion of many pending relicensing cases. The continued use of contractor support has supplemented staff work while accommodating the need to conduct thorough environmental analyses to meet ECPA and NEPA requirements.

In FY 1997, we expect to prepare 35 NEPA documents for 57 license or relicense applications. Many of these applications raise complex issues that will require an EIS. We plan to complete 3 EISs encompassing 26 projects proposed in areas within defined river basins.

We expect the number of applications for new capacity hydropower projects to remain relatively low. However, these applications will continue to raise new and difficult engineering, environmental, economic, and legal issues. These issues will require us to address a number of policy questions in balancing conflicting resource considerations and finding site-specific and basin-wide solutions to licensing proposals.

The FY 1997 budget request also supports a continuing staff effort to help applicants — as well as federal, state, and local resource agencies — to better understand the Commission's licensing requirements. This will include more frequent staff attendance at meetings in the project area to assist applicants in substantially completing NEPA documents prior to license applications being filed.

Dam Safety and Inspections. Total inspection workload will remain high in FY 1997. The increased number of terms and conditions contained in newly-issued relicenses has expanded, and will continue to expand, the time required to complete project inspections.

We plan to conduct in-depth dam safety evaluations on the structural integrity of approximately 600 major hydropower projects. We will also conduct about 2,600 dam safety inspections, review 165 independent consultant inspection reports (Part 12 reviews), and conduct 350 environmental and public use inspections. This workload is extremely important and will require continuing high levels of staff attention, because: (1) dams are aging, (2) new techniques identify hazards sooner and more accurately, (3) new seismic data will require updated evaluations, and (4) improvements in determining maximum hydrologic events will require re-evaluations of spillway designs and hazard potential ratings of dams. This budget request includes contract funds for recognized experts who will help conduct the analyses required for complex dam structures, and develop necessary remedies to assure structural integrity.

We expect dam safety modification workload to remain high through FY 1997, as improved dam safety instrumentation programs help identify problems in aging dam structures. Contractor support will supplement staff resources in the area of dam safety modifications. This support includes dam safety research and analysis to provide the program with the latest techniques needed to identify and resolve seismic, hydrologic, and geotechnical problems, and to develop improved analytical tools.

Beyond project-related workload, we will expand our participation in the dam safety community to develop improved technical tools and procedures for analyzing the stability and adequacy of dams and determining economical remedial measures. This will include more interaction with other federal agencies and technical groups to coordinate improvements to dam safety programs in the U.S.

To more accurately portray the type and amount of work we do in this area, we have revised our tracking of dam inspections in the workload tables, Appendix A. Prior to FY 1995, inspection counts were based on the number of developments within a project that were inspected. Some developments have multiple dams that were previously counted as one dam. Since the beginning of FY 1995, each dam (rather than each development) is counted as one dam. This enables us to more precisely schedule and track inspections for each dam based on the differing inspection frequencies for high, significant, and low hazard dams. The staff resources required are not affected by this counting change.

Compliance and Administration. Filings of environmental amendments and environmental compliance actions will increase in FY 1996. Both of these categories of work require high levels

of staff resources. This increased activity is caused by: (1) the large number of licenses we issued in the 1980s; (2) the increased number of conditions included in licenses, particularly those related to environmental protection, mitigation, and enhancement; (3) the new licenses the Commission will have issued from the large number of relicense applications; (4) the need to ensure consistency with a basin-wide comprehensive development standard; and (5) the likely need to employ reopener articles to address emerging environmental issues.

Relicenses issued in FY 1995 and FY 1996 will place greater emphasis on environmental mitigation and enhancement. Additional staff resources are required not only to handle the additional license article requirements, but also to manage other requirements incorporated by the license, such as memoranda of understanding and settlement agreements, which usually contain extensive stipulations. More partnership activities, such as compliance audits, license transition teams, and liaison work will be undertaken in FY 1996 and FY 1997 to help maintain compliance. Activities such as these are expanding the role and duties of license administration and require resources above those needed to process the docketed workload. These new licenses will also identify environmental issues that will need to be addressed at other existing projects. Ultimately, we will ensure that all projects regulated by the Commission comply with the comprehensive development requirements of the FPA throughout the terms of their licenses or exemptions.

We will complete headwater benefits investigations that we have targeted for priority action to ensure that appropriate revenue continues to flow into the U.S. Treasury as compensation for the benefits that our licensees derive from upstream federal improvements.

SUMMARY HYDROPOWER WORKLOAD

Receipts

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Hydropower Licensing	218	138	153
Dam Safety and Inspections	3,784	3,811	3,777
Project Compliance and Administration	2,406	2,276	2,380
TOTAL	6,408	6,225	6,310

Completions

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Hydropower Licensing	273	198	200
Dam Safety and Inspections	3,826	3,866	3,817
Project Compliance and Administration	2,420	2,175	2,440
TOTAL	6,519	6,239	6,457

Year-End Pending

	FY 1994 Actual	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Hydropower Licensing	363	308	248	201
Dam Safety and Inspections	774	732	677	637
Project Compliance and Administration	870	856	957	897
TOTAL	2,007	1,896	1,882	1,735

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NATURAL GAS AND OIL PIPELINES

Operating Expenses

($ in Thousands)

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Request
FUNDING	$68,554	$64,356	$59,806
FTEs	609	585	533

NOTE: As directed by the Congress, the Commission is reducing staffing to 533 FTEs by FY 1997, a 20% reduction from the FY 1995 authorized level of 666. The FY 1995 actual level shown above reflects the progress we have made thus far.

Overview

In the natural gas and oil pipelines program, our regulatory philosophy and efforts are focused on the continued development and enhancement of competition through open-access transportation. The gas and oil program has changed dramatically and continues to evolve as market opportunities grow. To meet these challenges, the Commission has the continuing role of shepherding and leading the industry toward a more competitive environment.

As directed by the Congress, we are reducing overall staffing in the natural gas and oil pipelines program to 533 full-time equivalents (FTEs) by the end of FY 1997, a 20 percent reduction from the FY 1995 authorized level of 666 FTEs, with a comparable reduction in requested funding.

The new resource levels will provide an adequate level of staff and funding to meet program goals and objectives, with increased focus on creating solutions and nurturing an environment to further competition. While our traditional, routine workload has decreased in the more ministerial areas, with an accompanying decrease in staffing levels, the Commission requires a highly trained technical staff that is able to provide the guidance and advice necessary to process the complex workload the Commission is experiencing. It is noted that even with anticipated gains in efficiency in workload processing and adjustments to staff and workload assignments, the 20 percent reduction in staff will result in an increase of pending workload in some areas. Resources will be focused first on workload with statutorily imposed deadlines.

As noted, the Commission has a vital role to play in the new natural gas marketplace. Further reductions would endanger our ability to respond to the industry's needs in a timely fashion.

Our activities include several elements:

- We actively work with all segments of these industries to pursue regulatory initiatives leading to greater competition and flexibility for ratepayers.

- We develop policies and solutions to meet and deal with emerging industry opportunities such as the use of market-based, negotiated, incentive, or other rate mechanisms, while we continue to look at new ways to improve traditional ratemaking techniques. We also develop unique and creative methods and policies, dealing with such fluid issues as the treatment of unbundled gathering services, potential revisions to the capacity release program, cost recovery possibilities for stranded upstream pipeline capacity, and the treatment of production area costs in an unbundled market.

- We analyze and act on filings reflecting industry responses to such initiatives as market-based rates, negotiated rates, incentive rates, and other nontraditional proposals.

- We facilitate the resolution of disputes involving tariff, rate, and miscellaneous service issues through an informal resolution process.

In addition, we analyze and act on more traditional filings involving the following requests and concerns:

- proposals to authorize, change, or abandon transportation, storage, or exchange of natural gas services;

- requests to site, construct, and operate facilities used to provide such services and for the import and export of natural gas;

- the environmental impact of, and the need for, the proposed service or facility;

- proposals for initial rates and subsequent changes to rates, including full rate cases involving all elements and costs of providing service, and limited rate cases involving only certain costs and services;

- filings involving tariff modifications to change services offered and to reflect changes in operational requirements, the tracking of specific cost items, compliance with Commission orders, and proposals requesting additional tracking or flowthrough authority; and

- general oil tariff and rate change filings.

The decrease in total workload numbers for the natural gas and oil pipelines program reflected in FY 1996 is carried over to FY 1997. This decrease is primarily due to a reduction in the

transportation transactions filings. From receipts of 3,615 in FY 1995, these filings are expected to drop to zero in FY 1996 and FY 1997. Elimination of these reports is part of the Commission's effort to reduce unnecessary filing requirements. While this reduction in the number of filings is substantial, the impact on staffing and workload will be minimal. Processing of these filings has always been ministerial and required very little staff analysis, with no more than three FTEs being allocated to this task in the past.

In keeping with the goals of reducing the filing burden on the industry and increasing accessibility to the users of this information, we are expanding our efforts on electronic filing. In the gas pipeline area, we are requiring that the majority of the filings and associated information be filed electronically over the next 12 months.

This effort will require upfront expenditures by the Commission to enable it to receive the electronic filings and to process the information to make it available to staff in a usable form via the Commission's computer network. These expenditures will also allow the electronically filed materials to be made available to the public via the Commission's electronic bulletin board service. The electronically filed data will be available faster and to multiple users simultaneously, and will eliminate much manual extraction and entering of data, resulting in more efficient and effective analysis by all parties.

FY 1995 and FY 1996 Achievements

In FY 1995, we issued several notices of inquiry, proposed rulemakings and final rules that reflect our vision as to how the post-Order No. 636 environment should work. We also issued notices of proposed rulemaking to revise, reduce, and update gas regulations and reporting requirements, including the manner and content of electronic filings to reflect the changes to regulatory information requirements in the post-Order No. 636 setting. Aside from reforming our past regulatory approach to gas transportation regulation, the revisions reflect our efforts to increase efficiencies and streamline proceedings. With a view toward reforming our regulatory approach, we sought industry input on alternatives to traditional cost-of-service ratemaking for natural gas pipelines, such as market-based rates and incentive regulation.

In FY 1995, in the area of rulemakings and policy statements, we:

- finalized the standards of conduct and reporting requirements for transportation and affiliate transactions in Order No. 566-A;

- issued a notice of proposed rulemaking and a final rule to modify the capacity release program to lessen administrative burdens on the industry by allowing pre-arranged deals to be transacted for an entire calendar month;

- issued a notice of proposed rulemaking implementing revisions to the Uniform System of Accounts, and to forms, statements, and reporting requirements for natural gas companies to recognize changes in the services provided by pipelines subsequent to the issuance of Order No. 636;

- issued a notice of proposed rulemaking on streamlining and reforming filing and reporting requirements of interstate natural gas company rate schedules and tariffs;

- as required by the above notices of proposed rulemakings, held a technical conference on the revisions and updating of the gas filing and reporting requirements so as to begin the process of modifying electronic filing and the forms filing requirements;

- convened a public conference to consider the status of electronic communications of operating and business information within the natural gas industry;

- issued a policy statement on the rate treatment for the cost of new pipeline construction;

- prepared a staff white paper on alternatives to cost-of-service ratemaking methodologies and issued it for public comment;

- issued final rules for oil pipelines on cost-of-service ratemaking, annual reporting requirements, and market-based ratemaking as alternative methods to the index-ratemaking methodology; and

- issued a notice of proposed rulemaking to exempt oil pipelines with minimal jurisdictional revenues from filing Form No. 6 and paying annual charges to the Commission.

To date in FY 1996, we have continued building on our efforts started in FY 1995 relating to ratemaking methods for the future, as well as started efforts for dealing with other post-Order No. 636 concerns facing the industry. To this end we have issued several additional final rules or policy statements.

In FY 1996 to date, in the area of rulemakings and policy statements, we:

- issued the final rule implementing the revisions to the Uniform System of Accounts, and to forms, statements, and reporting requirements for natural gas companies;

- issued the final rule streamlining and reforming the filing and reporting requirements of interstate natural gas company rate schedules and tariffs;

- conducted working group meetings with participants from all facets of the natural gas industry pursuant to the requirements in the final rules to work out mutually agreeable electronic filing specifications for pipeline informational filings, forms filings, and rate filings;

- issued a policy statement on alternatives to cost-of-service regulation for gas pipelines permitting use of negotiated rates with a recourse cost-of-service rate, revising the criteria for evaluation of incentive ratemaking proposals, and enunciating the determinations the Commission will make with regard to market power prior to allowing the use of market-based rates;

- instituted a rulemaking to consider further industry comment on the use of negotiated terms and conditions in conjunction with negotiated rates with a recourse rate;

- acted on the recommendations to speed up standardization of electronic communication by issuing an advanced notice of proposed rulemaking requesting input from the industry, particularly the Gas Industry Standards Board, on what standardized practices to require;

- issued a notice of inquiry for public comment and a subsequent policy statement on the regulatory status of pipelines on the Outer Continental Shelf, finding a presumption of nonjurisdictional gathering for facilities outside 200 meters offshore and continuing the application of the current criteria, known as the modified Farmland test, for facilities within 200 meters offshore; and

- issued a declaratory order establishing the Commission's policy allowing natural gas pipelines to acquire capacity on other pipelines.

As part of our efforts to make information readily available to the public in a user-friendly mode, we instituted the Gas Pipeline Data electronic bulletin board. Anyone with a computer, modem, and phone can access and download data from our bulletin boards without cost, or for the cost of a long distance phone call. The Gas Pipeline Data bulletin board contains current and historical tariffs for all regulated companies, all data from electronically filed forms, and the environmental guidelines for proposed pipeline construction projects.

The natural gas industry has been adjusting to the restructured business environment of Order No. 636. The program we have put in place appears to be highly successful. Transportation and supply alternatives have increased dramatically and prices have generally fallen without jeopardizing the reliability of natural gas service. We are assessing the success of the mandates of Order No. 636 using the first year reports on operations of the pipelines under Order No. 636 and conducting oversight of the industry.

As a result of industry oversight, we have been able to evaluate capacity availability, throughput, competition among buyers and sellers, increasing levels of transportation and consumption, use of

the capacity release program, use of storage facilities, the frequency of service interruptions, and other operational issues. Any problems found were generally unique to individual pipelines. In some instances we took steps to resolve these pipeline-specific problems by fine-tuning certain elements of our restructuring requirements, where necessary, to recognize the unique operating characteristics of each pipeline. In other cases, the pipelines made filings proposing operational changes, changes to services offered, or changes in their tariff terms and conditions. These changes were evaluated and either authorized, rejected, or modified.

Areas of increasing interest in the gas pipeline industry, and for regulated companies generally, are market-based ratemaking, negotiated ratemaking, incentive ratemaking, or a combination of market-based/incentive rates and cost-of-service rates. In order to become well-informed on the industry's concerns, both from the pipelines' and consumers' viewpoints, we issued a staff white paper on this issue. We solicited comments from all interested parties, and used those comments to formulate a statement of policy as to the Commission's regulatory approach to alternative ratemaking proposals made by the natural gas pipelines. We have also established a new rulemaking docket to solicit further comments on the possibility of permitting negotiation of terms and conditions of service between pipelines and their customers. To date, we have permitted market-based rates in certain limited cases for new, small gas storage projects that clearly lacked market power. Also, in the oil pipeline arena, we have had several fully litigated market power cases and have permitted market-based rates on segments of two oil pipelines.

The capacity release program established by Order No. 636 was also the focus of much attention by the industry and the Commission. Various parties raised concerns about the operation of the program. Thus, in order to fully investigate the concerns, we initiated a series of 19 outreach meetings with all segments of the natural gas industry. We used the comments from these meetings to quickly propose, and then issue, a final rule to improve the program.

In FY 1995, we have continued to process a significant number of filings by pipeline companies to recover transition costs resulting from Order No. 636. In these cases in particular, we have made significant progress in using ADR techniques to resolve the often contentious proceedings. In many cases we have established conferences and facilitated resolutions of the issues.

The Commission convened a public conference to consider the current state and future development of electronic communication within the natural gas industry. During the conference the Commission solicited views on the current state of operations of the pipelines' electronic bulletin boards, the advisability of developing standards for the electronic bulletin boards, the progress being made in standardizing information contained on the boards, and how the Commission should be involved in the process.

The Commission issued a declaratory order to clarify its policy regarding pipelines holding capacity on other pipelines. The Commission stated it would examine proposals to acquire such capacity on a case-by-case basis.

With pipeline restructuring largely completed, we were able to also focus attention on reforms to our certificate program. We took two important steps. First, we began a comprehensive review of our certificate regulations, targeting those that merit elimination or modification. Our goal in this process is to reduce burdensome and unnecessary requirements and heighten focus on those that are material to a public interest determination. Second, in order to give more certainty to sponsors of pipeline construction projects (and their potential markets), we issued a policy statement on the pricing of new construction. The policy provides a mechanism for an up-front determination, in the certificate proceeding, of the rate treatment likely to be applied to the project.

Consumer Protection — Rates. To protect consumers from unjust and unreasonable rates, as mandated by the Natural Gas Act (NGA) for gas rates and by the Interstate Commerce Act for oil pipeline rates, we:

- acted on 17 general NGA Section 4 gas rate applications in FY 1995, and 4 to date in FY 1996, involving cost of service, rate allocation, depreciation, rate of return, and other issues;
- acted on 1,189 limited NGA Section 4 gas rate filings in FY 1995 and 400 to date in FY 1996 — composed mostly of filings to recover remaining take-or-pay costs, transition costs related to the implementation of Order No. 636, including Account No. 191 close-out direct bills, gas supply realignment costs, and costs associated with unneeded upstream capacity — plus cost-tracking filings, tariff language changes relating to services or operational terms and conditions, and all associated compliance filings;
- authorized 567 oil pipeline rate tariff filings in FY 1995 and 205 to date in FY 1996;
- analyzed responses to approximately 100 requests in FY 1995, and 40 to date in FY 1996, for information to expedite the review of rate and tariff change proposals and avoid time-consuming administrative procedures, such as litigation;
- served initial settlement offers to the parties in 15 litigated rate cases in FY 1995 and in 5 cases to date in FY 1996;
- served testimony in 14 litigated cases in FY 1995 and in 7 to date in FY 1996;
- performed approximately 60 field audits in litigated rate cases in FY 1995 and 20 to date in FY 1996;
- issued 8 Commission opinions on initial decisions in gas pipeline proceedings in FY 1995 and 1 to date in FY 1996;

- issued Commission opinions on 3 non-Trans Alaska Pipeline System oil hearing initial decisions, thus completing 24 litigated oil pipeline dockets in FY 1995;

- resolved 2 appeals of Department of Energy (DOE) remedial orders concerning DOE's oil price regulation program in FY 1995; and

- completed the processing in FY 1995 of the last 55 refund cases involving Kansas ad valorem tax refunds, in order to close out the producer price regulation program.

Consumer Protection — Construction. To ensure that pipeline construction projects were in the public interest, we:

- approved, in FY 1995, case-specific gas pipeline construction projects or projects to operate facilities involving over 1,024 miles of gas pipeline, 165,000 horsepower of compression, 2.25 billion cubic feet of capacity per day, and $1.1 billion in potential investment, and in FY 1996 to date, over 268 miles of gas pipeline, 26,911 horsepower of compression, 1.2 billion cubic feet of capacity per day, and $204 million of potential investment;

- served over 200 data requests in FY 1995 to obtain information necessary to process these pipeline certificate applications and to resolve protests, and 70 to date in FY 1996;

- issued 13 preliminary determinations giving applicants early guidance on the non-environmental aspects of their gas pipeline construction proposals in FY 1995; and

- processed over 300 prior notice filings for gas pipelines in FY 1995 and 102 to date in FY 1996.

Environmental Protection. To ensure protection of the environment, we:

- conducted 287 construction site compliance inspections during both construction and restoration of the right-of-way and 1 on-site engineering audit in FY 1995, and 81 construction site inspections to date in FY 1996;

- conducted 9 LNG plant safety inspections in FY 1995 and 1 to date in FY 1996; and

- conducted 84 environmental assessments, 2 draft environmental impact statements, and 3 final environmental impact statements for gas pipeline construction in FY 1995, and 31 environmental assessments and 2 draft environmental impact statements to date in FY 1996.

In addition, we convened 8 industry outreach training sessions in FY 1995. These sessions covered pre- and post-certificate requirements to aid applicants in preparing complete applications concerning the Commission's environmental filing requirements. Specifically, sessions provided guidance on

environmental report preparation, construction environmental compliance, and cultural and historical resource requirements. Attendance averaged from about 30 individuals for the cultural seminars to about 100 individuals for the other seminars. Attendees consisted mostly of company representatives and consultants. These seminars were well received and we have received requests to conduct additional sessions.

To ease the burden of our environmental oversight, we:

- initiated procedures for third-party contracting for environmental documents to speed and improve the certificate process;

- permitted applicants to prepare environmental assessments themselves, which they may file with the applications to speed the review process; and

- reviewed requests for, and ultimately granted in FY 1995, 355 categorical exclusions from environmental assessments or impact statements where it was determined no significant impact on the environment would occur, and 134 to date in FY 1996.

Alternative Dispute Resolution. Our overall approach to resolving issues or cases has been to maximize the use of alternative dispute resolution (ADR). This took the form of informal technical conferences where parties aired their positions and, in many cases, resolutions were reached. If the problems were not resolved, position papers were filed to provide a complete record, and we were then able to decide many issues on the merits without the need for protracted litigated proceedings. As an example of the effectiveness of ADR measures, the Commission approved a settlement which resolved over 100 outstanding interrelated FERC cases and associated court cases involving Columbia Gas Transmission Corporation's bankruptcy proceeding. This settlement provided for the distribution of $7.5 billion to various creditors, and established the basis for Columbia to emerge from bankruptcy after four and one-half years of bankruptcy court protection.

In our effort to promote efficiency and to lessen the burden on all participants in proceedings, we used alternatives to formal litigation at every appropriate opportunity. In this regard, we:

- convened 64 technical conferences in FY 1995, and 15 to date in FY 1996, to resolve questions and concerns raised by the Commission or consumers related to rate and certificate proceedings; and

- acted on 76 natural gas and oil settlements in FY 1995 and 25 to date in FY 1996, including the following significant actions:

  - approved 3 full or partial settlements of gas rate proceedings, resulting in the completion of 143 outstanding dockets in FY 1995;

- approved 27 full or partial settlements of gas rate cases that had been set for hearing before the administrative law judges, resulting in the completion of 47 outstanding dockets in FY 1995, and 9 settlements of 11 dockets to date in FY 1996;

- approved 1 full or partial settlements of oil rate cases that had been set for hearing before the administrative law judges, thereby completing 1 outstanding docket in FY 1995, and 13 settlements of 70 dockets to date in FY 1996; and

- approved 4 settlements in FY 1995, and 2 to date in FY 1996, relating to the gas supply realignment transition cost filings of certain pipelines as a result of Order No. 636.

The natural gas and oil pipelines workload chart, beginning on page 83, reflects a more comprehensive breakdown of activities occurring in the program. This year, to more clearly portray the variety of work in this program, we have included additional workload categories. This change flows from the implementation of Order No. 636 and the FY 1994 reorganization of the technical program office, which have allowed a better delineation of workload responsibility. Additional categories involving prefiling conferences, public conferences, and other outreach activities are included in the workload and reflect the Commission's policies and philosophies of service through assisting the industry in crafting solutions and increased interaction with the industry.

FY 1996 and FY 1997 Program Issues

Order No. 636 totally restructured the interstate natural gas pipeline industry. Mere implementation of that order, however, does not insure the continued successful development of this new industry structure or satisfy the Commission's mandate under the NGA to ensure just and reasonable rates. The Commission is facing a variety of proposals from the industry setting forth new types of services, novel rate approaches, and ways to attract new markets. These filings are accompanied by requests for expedited handling by the Commission so that the industry is able to meet the fast changing requirements in the market place. At the same time, the Commission must be vigilant in ensuring that the pipelines are not wielding monopoly power over the transportation service to the detriment of the shippers, local distribution companies, and end users on the system. In order to further what we have started, we will:

- begin to analyze and process filings made pursuant to our policy statement on alternative ratemaking methodologies;

- analyze the comments received on negotiation of natural gas pipeline service terms and conditions in consideration of expanding the policy statement on allowed alternative ratemaking methodologies;

- apply criteria for market-based rate proposals where an applicant can show it lacks market power;

- review the current rate of return policy to ascertain whether it is appropriate in today's capital markets, or whether different approaches to evaluate risk, market analysis, and the choice of proxy companies would more accurately reflect the financing costs of the pipeline industry;

- examine issues and analyze policies relating to the treatment of production area rates;

- continue the Commission's efforts relating to standardization of electronic information interchange within the natural gas industry to simplify and improve market and operational transactions;

- monitor industry performance and its structural changes under Order No. 636, including the review of conditions imposed on storage service, operational balancing agreements, upstream capacity retention, bidding under the right of first refusal, and other issues raised in petitions or complaints before the Commission to insure anticipated results and to address new issues;

- develop policies to foster innovative service offerings by the pipeline industry to satisfy today's market structure and encourage growth in the use of natural gas;

- develop means of analyzing individual pipeline construction projects in light of the overall needs of the national integrated pipeline grid, rather than solely on the merits of an individual project;

- encourage development of new supply sources for end use markets, thus expanding natural gas use in the marketplace; and

- develop advanced computer applications and electronic databases for pipeline and industry data, including the capability to receive and use digitalized maps, graphics, and photographs, in order to enhance industry monitoring, increase accessibility of information to all interested parties, and enhance the operation and processes of the Commission.

Improving Existing Approaches. Even as we tackle future program issues, we must continue improving existing processes. We will continue to:

- reduce case processing times for both construction certificate and rate and tariff change applications;

- improve the quality and content of pipeline filings, particularly through the use of prefiling conferences for both the natural gas and oil pipeline areas;

- improve our consumer outreach program to increase public awareness of pipeline construction proceedings;
- evaluate the environmental filing procedures and requirements for gas pipeline construction projects to adapt to the restructuring of the industry;
- conduct industry training seminars on environmental compliance, environmental report preparation, and cultural and historical resource requirements, to assist applicants in preparing complete filings and to speed the processing of applications;
- eliminate unnecessary filing and reporting burdens to improve the usefulness and availability of the data collected;
- continue to encourage third-party contracting for environmental documents, to accelerate the application review process; and
- implement the rolled-in/incremental pricing policy for new construction, addressing issues as they arise during this process, and evaluating and acting on the expected increase in requests for declaratory orders.

General Rate Issues

As the natural gas industry matures under the new structure established by Order No. 636, we will face new issues as regulators. In light of the variety of options to obtain capacity now available — such as released capacity, interruptible capacity, short-term firm capacity, and storage — current contractual holders of firm transportation capacity will reassess the level of firm capacity they must hold. We anticipate that, as current contracts expire, the capacity holders will reduce the quantity of firm transportation capacity they hold. This will free capacity, creating interesting challenges for the pipelines, their customers, and the Commission.

Some market areas will have excess capacity. In these cases, the pipelines will need to aggressively market the freed capacity to new users along their systems and to work at increasing the general demand for gas as fuel or feedstock to assure utilization of the current capacity. The Commission has announced it will give considerable rate flexibility for pipelines seeking to market turned back capacity while protecting remaining customers. Further, we anticipate that pipeline marketing of freed capacity will affect the capacity release market and its operations.

Just as the need for existing capacity is declining in some market areas, it is expanding in others. New competitors may be able to deliver gas less expensively than traditional suppliers, and thus pipeline capacity utilization patterns will shift. This is the dynamic of an increasingly competitive, maturing marketplace. We are seeing new supply basins being developed such as on the Outer Continental

Shelf in the Gulf of Mexico, Sable Island off Nova Scotia, and in Western Canada as sources of gas for this new competition.

Coincidentally, the Commission is experiencing an increase in the number of certificate applications filed by the pipelines to reflect these new capacity utilization patterns and sources of supply. This increase is occurring throughout most of the regions in the country as pipelines are developing creative and specialized services to meet their customers' needs under the new market dynamic. For example, pipeline expansions are before the Commission in applications filed by: Columbia Gas Pipeline Corporation for markets in Ohio, Pennsylvania, Maryland, Virginia, and North Carolina; Northern Border Pipeline Company and Natural Gas Pipeline Company of America for increased capacity into the Chicago area; and Maritimes and Northeast Pipeline, L.L.P. for markets in New England. Phased construction is being discussed for TransColorado Gas Transmission Company to move San Juan supplies to Blanco, N.M., to interconnect with El Paso Natural Gas Company and Transwestern Pipeline Company.

The Commission, therefore, is facing capacity turnback issues in rate filings simultaneously with pipeline expansion issues in certificate applications. Reconciling the outcomes of these issues, particularly with regard to determining where the public interest lies, will pose significant challenges for the Commission and the industry.

In the short term, the Commission has begun the process of allowing pipelines to propose innovative rate techniques to ease the adjustments to the new capacity levels and to provide incentives to the pipelines to find new markets for the freed capacity. In the longer term, we will need to further enhance the ratemaking options to assist the industry in providing pricing and marketing flexibility to attract new long-term gas users.

The pipeline industry and financial analysts have recently focused on the perceived inadequacy of the rates of return granted the pipeline industry and the pipelines' resultant difficulty in competing for capital in the financial markets. In response, the Commission has started a review of its rate-of-return analysis to determine whether the criticisms are justified and, if so, what types of changes could be made.

The series of outreach meetings we held on capacity release provided us with information on a variety of issues related to the secondary transportation market. These issues include possible modification or elimination of the bidding process, changes to posting requirements, the permissibility of extended term direct deals, and possible modification or elimination of the cap on the release price. The Commission will review the capacity release program to determine whether any changes are warranted and, if so, the extent of the changes needed. We anticipate action on these issues in FY 1996.

We will also have to develop new methods to monitor pipeline rates and financial information filings to ensure that the last-approved rates, whether cost-based or otherwise, continue to be just and

reasonable, since pipelines are no longer required to make periodic, scheduled filings with the Commission.

Even while the Commission confronts new issues and new types of filings, we must continue to address existing issues and filings. Fuel-use tracking filings will continue under the new environment, as pipelines assess and seek to bill transportation costs to the appropriate parties. Other tracking filings, such as those to recover third-party pipeline transportation charges, will also continue to be filed as pipelines are able to shed unwanted upstream capacity.

Pipelines will continue to file limited NGA Section 4 cases for the recovery of transition costs. The resolution of issues that are currently being litigated will be applied to new filings. To the extent new issues arise in new filings, we will develop new policies or add issues to the ongoing formal proceedings. The Commission will continue to encourage voluntary settlements of these contentious proceedings.

Because of all the new issues the Commission will be facing, the filings and proposals will require more detailed, innovative, and in-depth analysis by well trained, versatile, and highly educated staff. While the absolute number of filings and proposals received by the Commission is expected to decrease, those that are received will be far more difficult to analyze, since they will not follow a structured format and, in many cases, will not have established precedent.

Certificates

Most of the routine activity subject to the certificate requirements of the NGA is now authorized under blanket certificates rather than through case-by-case review. Blanket certificate authority permits the certificate holder to install limited facilities and offer services, either on a self-implementing basis or after a notice period. The Commission monitors these activities through various compliance filings and reporting requirements.

Generic authorization of certain types of facilities, as opposed to a case-by-case approach, has two principal advantages. First, a generic approach reduces the burden on industry, allowing more timely construction of facilities and the initiation and cessation of services (market entry and exit) in response to market conditions. Second, it permits the Commission to concentrate its certificate resources more productively on those proceedings where case-specific analysis is required — such as major construction projects to provide new or increased transportation, storage and import/export services, and unique proposals involving novel forms of market responsive services, pipeline conversions, service restructurings, organizational realignments, and sale or transfer of pipeline facilities.

Also, in view of the industry's consolidation efforts, we expect to receive cases pertaining to jurisdictional issues, as the once distinct line between intrastate and interstate services becomes blurred. These types of cases will be contested and raise controversial and complex issues.

With the competition in the gas market becoming more international, the Commission is receiving more NGA Section 3 filings and related requests for Presidential permits to construct and operate border facilities to import and export gas. We are seeing requests to build related NGA Section 7 facilities for export of gas to serve Mexican and Canadian markets.

During FY 1997, we will continue our enhanced public information program on the pipeline construction environmental review process, which includes:

- local pre-construction notification, through notices of intent to prepare environmental documents and mailings to all landowners affected by pipeline activity on rights-of-way or elevated noise levels;
- public notification of local environmental scoping meetings on proposed projects;
- public notification of pre-construction site inspections on controversial projects conducted by the Commission staff and cooperating federal and state agencies;
- enhanced coordination with state agencies; and
- outreach programs to inform the industry and public of our environmental policies.

To address the public's environmental concerns, we continue to work on ways to enhance our communication with affected parties. Early identification of these environmental concerns translates into a reduction in the overall certificate processing time. We are also intensifying our on-site inspections during a project's construction and post-construction phases.

We will also continue to update and streamline our nonenvironmental review process for pipeline construction and operation certificates. This will give pipelines the ability to respond quickly to competitive market conditions. In FY 1997, we will continue to:

- ensure that proposals are complete and include market support, as defined by recent Commission orders, before processing begins;
- convene technical conferences, when necessary, soon after the comment periods for applications expire, to obtain additional needed data on the applications;
- schedule most preliminary determinations on new construction projects for disposition within 120 days after receipt of a complete application;
- address policy issues to provide regulatory certainty, while remaining sensitive to the individual circumstances of the applicant and parties in case-specific proceedings;

- expedite our review process to meet proposed in-service dates, while observing due process and all applicable environmental laws;
- develop procedures to assist new entrants into the natural gas market;
- target areas of certificate regulations for revision or elimination, while balancing public interest considerations with the goals of market responsibilities and more light-handed regulation; and
- use interdisciplinary teams to improve the quality of technical analysis and speed caseload processing.

Compliance/Oversight

Post-Certificate Conditions. These activities reflect our increased concern with environmental monitoring and compliance after certificate issuance. We will conduct both in-house reviews of required filings (paper compliance) and site inspections (field audits and on-site inspections).

We approve construction applications subject to certain conditions. Environmental assessments include, on average, more than 10 conditions, and environmental impact statements include, on average, nearly 50 conditions.

We conduct compliance site inspections during and after construction of a certificated pipeline project, sometimes with other federal, state, and local agencies. Site inspections require:

- conducting field reviews on most pipeline projects greater than two miles in length, and on pipelines or above-ground facilities in environmentally sensitive areas; and
- scheduling inspections during construction to monitor compliance with construction conditions, and after construction to monitor restoration.

When the inspection reveals noncompliance, such as damage to a resource or failure to adhere to the required construction or restoration procedures, we require the company to bring its project into compliance. Repeated or serious noncompliance may require stop-work orders or enforcement action. Certificate orders are conditioned to ensure protection of the environment during construction. After a determination that right-of-way restoration is proceeding satisfactorily, companies must receive written authorization from the Commission before starting service.

Pipeline Safety. The Department of Transportation (DOT) has the statutory responsibility to ensure that pipelines are safe. The Commission will continue to work cooperatively with DOT to enhance the pipeline safety program. The Commission has an effective memorandum of

understanding with DOT regarding respective responsibilities on safe and environmentally sound siting, design, construction, operation, and maintenance of natural gas transportation facilities.

LNG Operational Safety and Reliability Inspections. Through the memorandum of understanding with the DOT, we conduct liquified natural gas plant safety inspections in accordance with the NGA, which requires the assurance of a plant's operational reliability. We conduct these inspections on a biennial basis, so we can inspect all jurisdictional facilities every two years.

NGPA Section 311 Construction and Section 2.55 Replacements. Commission Order No. 544 requires pipelines to file advance notices and annual reports of construction activities undertaken pursuant to Section 311 of the Natural Gas Policy Act. Replacements of existing facilities are subject to the same requirements. Review of these notices and reports enables us to ensure that pipelines comply with all environmental requirements and to take follow-up action as required.

- Section 2.55 Replacement Filings Exceeding Cost Limits: Jurisdictional companies replacing natural gas facilities under 18 CFR 2.55 (b) must notify the Commission at least 30 days prior to commencing construction if the cost of the project exceeds a specified cost limit.

- Section 311 Construction Filings Exceeding Cost Limits: Pipelines contemplating construction activity related to NGPA Section 311 transportation must provide similar notice if the project exceeds the cost limit.

- For both Section 311 and Section 2.55 filings, site inspections are conducted on pipelines exceeding 2 miles in length and on those pipelines being constructed in environmentally sensitive areas.

For those projects that are exempt from the advance notice requirement, we require the filing of an annual report containing the same information required for an advance notification.

Blanket Annual Reports. This category covers environmental monitoring of compliance by those projects automatically authorized under blanket certificate authority and reporting annually under 18 CFR 157.207. These reports, among other things, allow the Commission to verify that pipelines are complying on their own with standard environmental conditions and keep the Commission informed on projects not subject to the prior notice requirement.

Refunds. When pipeline companies file proposed rate changes, they are usually accepted by the Commission, subject to refund. The Commission may order refunds at the end of the proceedings that determine the appropriate final rate.

Accounting and Financial Reporting. An essential element in the Commission's rate program continues to be the existence of reliable financial accounting information based on sound accounting principles applied to all jurisdictional companies. The Commission uses the accounting information

to establish just and reasonable rates under Sections 4 and 5 of the NGA, measure historic economic performance, assess compliance with the terms of accepted tariffs, determine the adequacy of current rates, and construct ratemaking models for the development of future rates.

A program of financial audits assures the reliability of this data. The Commission audits about 60 percent of the 134 jurisdictional natural gas pipelines every four years. We audit the other companies more or less frequently, depending on factors such as the use of automatic mechanisms and the frequency of rate filings.

The audits also assist the Commission in such diverse areas as:

- evaluating the overall health of the natural gas industry;
- determining the financial performance of specific companies;
- determining potential or actual discrimination by jurisdictional companies in price and quality of service;
- performing edit checks to assess the accuracy of information posted on electronic bulletin boards mandated by the Commission and operated by jurisdictional gas pipeline companies;
- reviewing information needed to monitor incentive rates and rate subsidies;
- testing for discriminatory transactions between jurisdictional companies and their affiliates; and
- ensuring that pipelines comply with the terms and conditions of their approved tariffs and certificate requirements.

As part of the ongoing effort to streamline regulation of the industries, we have issued a final rule revising Forms 2 and 2-A and Form 11 filing requirements for interstate natural gas pipelines. In FY 1997 we will be completing the implementation of the new data filing requirements and associated changes to the electronic filing requirements for these forms.

Similarly, we administer a Uniform System of Accounts and Form 6 reporting requirements for jurisdictional oil pipelines. We have issued final rules that deleted, modified or added new Form 6 reporting requirements and established a minimum filing threshold for Form 6. We audit the books and records of the Trans Alaska Pipeline System and its owners on a cyclical basis; we audit all other oil pipelines on an as-needed basis.

Summary of Natural Gas and Oil Pipelines Workload and Resource Needs

Order No. 636 ushered in a newly competitive era for natural gas sales and has freed the industry to develop a robust array of new services and financial instruments. The new dynamic has led to many significant new challenges in the regulatory arena. Most interstate pipelines will continue to be regulated monopolies. The Commission faces the challenge of how to improve its approach to regulation in the new environment. We retain important responsibilities and will continue to play a significant role as the industry responds and adjusts to the changes brought about by Order No. 636, and as we address new issues that continue to arise.

Natural Gas. As participants adapt to the restructured natural gas industry, we expect to encounter new and difficult issues. Issues that were not prominent prior to implementation of Order No. 636 — such as market-based rates and incentive rates, the secondary market, market hub development, and decontracting in some markets — now confront the Commission. We must develop approaches and policies for addressing these issues. Furthermore, existing concerns such as production area rates must be addressed.

Overall, the number of certificate filings in FY 1996 and FY 1997 is expected to be constant. However, an increasing portion of that workload will be comprised of the more complex workload including new pipeline construction projects, particularly several in the northeast and midwest, plus new storage projects, unique service proposals, and conversion of oil pipelines to gas pipelines. Abandonment filings are expected to decline slightly, as are prior notice filings, as the Order No. 636 transition period ends. Partially offsetting the decline in these workload categories will be increases in compliance activities relating to the annual reports on facility construction under blanket certificates. Further, nonenvironmental certificate activity is expected to increase.

Ratemaking workload, while decreasing in quantity, is increasing in difficulty and complexity. Regulation in today's lightened regulatory environment is no less difficult, and in many cases no less time consuming, since new issues presented have no precedents upon which the Commission can rely.

Increased electronic filing of materials in the gas program is expected to improve the overall productivity of the program through simultaneous use of materials filed, faster access to materials, and the elimination of manual extraction and entering of data.

Oil Pipelines. In FY 1997, we will be in the third full year of the revised regulatory scheme applicable to oil pipelines. The Energy Policy Act required that we streamline our ratemaking methodology and simplify our filing requirements. However, as we implement these measures, we expect some companies to file to increase their rates either selectively or across the board as allowed under the new rule. These filings are reflected in the general tariff and rate increase categories, respectively. We anticipate that the workload growth in these categories will lead to more litigated cases as these filings present issues to be resolved in formal hearings.

SUMMARY NATURAL GAS AND OIL PIPELINES WORKLOAD

Receipts

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Certificates	2,827	2,548	2,473
Rates	6,251	2,386[5]	2,239
Oil Pipelines	1,731	1,711	1,704
TOTAL	10,809	6,645	6,416

Completions

	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Certificates	2,812	2,503	2,369
Rates	6,281	2,378	2,142
Oil Pipelines	1,666	1,789	1,770
TOTAL	10,759	6,670	6,281

Year-End Pending

	FY 1994 Actual	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate
Certificates	541	556	601	705
Rates	706	676	684	781
Oil Pipelines	346	411	333	267
TOTAL	1,593	1,643	1,618	1,753

[5]This large decrease reflects the termination of the ministerial filing of the transportation transactions, which required less than three FTEs to maintain.

APPENDIX A:

WORKLOAD TABLES

ELECTRIC POWER WORKLOAD[6]

The following table includes receipts and completions in FY 1994 to provide a fuller picture of the growing substantive workload in electric power.[7]

	FY 1994 Actual			FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
Electric Power	R	C	P	R	C	P	R	C	P	R	C	P
Rate Filings	983	1,373	456	1,793	1,735	514	2,750	2,750	514	2,750	2,750	514
Formal Inv. Rate Level	29	17	47	84	44	87	75	70	92	80	75	97
Compliance Filings	141	139	59	372	288	143	750	750	143	900	900	143
Formal Inv. Other	22	17	37	18	17	38	22	23	37	25	25	37
Transmission Service	11	5	9	7	4	12	11	7	16	12	12	16
Small Power	130	140	4	368	357	15	150	150	15	150	150	15
Cogeneration	176	178	17	151	158	10	175	175	10	175	175	10
Federal Rate Filings	18	16	5	12	12	5	12	12	5	14	14	5
EWG Determinations	108	99	27	102	89	40	100	100	40	105	105	40
Corporate Applications	29	28	12	21	23	10	32	34	8	35	37	6
Interlocking Positions	89	86	10	99	98	11	100	100	11	110	110	11
Securities	83	82	11	95	91	15	85	90	10	85	85	10
Financial Audits	45	40	65	40	39	66	30	35	61	30	35	56
Contested Accounting Cases	2	0	8	4	3	9	4	4	9	4	4	9
FA Refund Reports	12	10	11	14	11	14	15	20	9	15	15	9
Accounting Approval Filings	122	114	68	86	62	92	90	90	92	90	90	92
Declaratory Orders	55	44	29	42	28	43	50	50	43	60	60	43
Complaints	24	16	29	32	22	39	35	35	39	40	40	39
Rehearings	131	128	73	137	112	98	150	150	98	150	150	98
TOTAL	2,210	2,532	977	3,477	3,193	1,261	4,636	4,645	1,252	4,830	4,832	1,250

[6]Key: P = Year-End Pending; R = Receipts; C = Completed.

[7]FY 1994 workload also included 650 one-time ministerial filings not reflected in this table.

HYDROPOWER WORKLOAD

	FY 1994 Actual	FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
Hydropower Licensing	P	R	C	P	R	C	P	R	C	P
Major Constructed	12	0	1	11	0	5	6	0	3	3
Major New Capacity (Nonformal)	56	5	12	49	10	8	51	7	22	36
Major Relicense (Fml)	2	0	1	1	0	0	1	0	0	1
Major Rel. (Non-Fml)	100	2	11	91	6	41	56	8	34	30
Minor New Capacity	21	8	12	17	4	4	17	6	12	11
Minor Relicense	35	1	11	25	2	11	16	3	6	13
Minor Constructed	11	4	1	14	5	3	16	5	2	19
Preliminary Permit	41	42	53	30	14	32	12	14	14	12
Exemptions - 5 MW	3	1	1	3	2	2	3	3	2	4
Surrender Prelim. Permit	4	25	27	2	12	12	2	12	12	2
Exemptions - Conduit	1	4	3	2	4	3	3	4	2	5
Cancel Prelim. Permit	1	9	9	1	8	6	3	10	10	3
Declaratory Orders	2	0	1	1	1	1	1	1	1	1
Rehearings	74	117	130	61	70	70	61	80	80	61
TOTAL	363	218	273	308	138	198	248	153	200	201

	FY 1994 Actual	FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
Dam Safety & Insp.	P	R	C	P	R	C	P	R	C	P
Operation Inspections[a]	138	1,540	1,540	138	1,540	1,540	138	1,560	1,560	138
Prelicense Inspections[a]	0	36	36	0	32	32	0	32	32	0
Construction Inspections[a]	175	451	451	175	400	450	125	390	400	115
Exemption Inspections[a]	100	405	405	100	353	353	100	350	360	90
Special Inspections[a]	125	242	242	125	240	240	125	250	250	125

Continued on Next Page.

[a]The dam safety and inspections workload reflects the new counting system implemented in FY 1995 (see the discussion, beginning on page 53). Staff resource requirements are not affected by this counting change.

Dam Safety & Insp.	FY 1994 Actual	FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
	P	R	C	P	R	C	P	R	C	P
Engineering Evaluation and Support	149	600	600	149	600	600	149	600	600	149
Part 12 Reviews	87	123	165	45	150	165	30	155	165	20
Dam Safety Review[9]	0	0	0	0	110	100	10	40	50	0
Environmental and Public Use Inspections	0	344	344	0	336	336	0	350	350	0
EAP Tests	0	43	43	0	50	50	0	50	50	0
TOTAL	774	3,784	3,826	732	3,811	3,866	677	3,777	3,817	637

Project Compliance & Administration	FY 1994 Actual	FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
	P	R	C	P	R	C	P	R	C	P
Environmental Amend.	344	852	816	380	900	800	480	1,000	1,050	430
Engineering Amend.	27	75	64	38	60	60	38	60	60	38
Schedule Amendments	14	256	243	27	300	300	27	300	310	17
Project Amendments	65	137	140	62	100	100	62	100	100	62
Non-Project Use	30	118	110	38	70	70	38	70	70	38
Declaration of Intent	3	2	4	1	5	5	1	5	5	1
Unlicensed Project	1	8	5	4	5	5	4	5	5	4
Federal Lands Review	3	253	255	1	230	230	1	230	230	1
Headwater Benefits Investigations	27	7	13	21	8	8	21	8	8	21
Headwater Benefits Assessments	0	105	105	0	100	100	0	100	100	0
Environmental Compl.	164	186	240	110	200	200	110	200	200	110
Engineering Compliance	30	42	54	18	15	15	18	15	15	18
Procedural Compliance	49	157	154	52	60	60	52	60	60	52
Schedule Compliance	15	98	107	6	100	100	6	100	100	6

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[9]New workload category for reviews of all applications for new license, original license, and exemption that involve existing dams, to evaluate dam and project safety.

	FY 1994 Actual	FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
Project Compliance & Administration	P	R	C	P	R	C	P	R	C	P
Penalty Assessment	30	5	19	16	12	12	16	12	12	16
Amendments (New Cap.)	0	1	0	1	1	1	1	1	1	1
Surrender of License	10	12	10	12	25	25	12	25	25	12
Transfer of License	4	23	20	7	25	25	7	25	25	7
Reopener Investigations	8	3	3	8	5	5	8	5	5	8
Endangered Species Consultations	0	0	0	0	6	6	0	6	6	0
Abnormal Events	0	0	0	0	3	3	0	3	3	0
Compliance Audits	0	24	24	0	24	24	0	24	24	0
Complaints	8	0	3	5	6	5	6	6	6	6
Rehearings	38	42	31	49	16	16	49	20	20	49
TOTAL	870	2,406	2,420	856	2,276	2,175	957	2,380	2,440	897

NATURAL GAS AND OIL PIPELINES WORKLOAD

Certificates	FY 1994 Actual	FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
	P	R	C	P	R	C	P	R	C	P
Construct. & Operation (Nonformal)	91	126	146	71	140	120	91	140	123	108
Const. & Oper. (Formal)	2	0	0	2	0	0	2	0	0	2
Envir. Condition Compl.	50	597	597	50	500	500	50	500	475	75
Compliance Insp. & LNG Safety Inspections	0	296	296	0	260	260	0	247	247	0
Sect. 2.55, 284.11 & Subpart F	25	163	147	41	160	160	41	160	152	49
Construction & Operation Reports	0	100	100	0	100	100	0	100	100	0
Prior Notice	68	320	317	71	275	265	81	275	270	86
Emerg. Trans., Curtail.	2	23	20	5	22	20	7	20	7	20
Abandonments	74	180	165	89	160	150	99	150	140	109
Compliance Filings	27	228	222	33	160	155	38	130	128	40
Export/Import	18	16	21	13	25	25	13	25	24	14
Section 3 Filings	12	8	8	12	8	8	12	8	8	12
GRI	1	3	3	1	1	1	1	1	1	1
Public Outreach Sessions	0	8	8	0	6	6	0	6	6	0
Technical Conferences	0	21	21	0	17	17	0	17	17	0
Prefiling Meetings	0	80	80	0	80	80	0	80	80	0
Prelim. Determinations	0	13	13	0	12	12	0	12	12	0
Envir. Assessments (EA)	35	84	84	35	84	84	35	84	80	39
EA Repts. 157.208, etc.	8	63	63	8	60	60	8	60	57	11
EA Repts. (Sect. 380.4)	39	355	355	39	350	350	39	350	333	56
Envir. Impact Statements	3	3	3	3	3	2	4	3	4	3
Declaratory Orders	18	38	20	36	30	28	38	25	25	38
Rehearings	68	95	121	42	90	95	37	75	75	37
Complaints	0	7	2	5	5	5	5	5	5	5
TOTAL	541	2,827	2,812	556	2,548	2,503	601	2,473	2,369	705

	FY 1994 Actual	FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
Gas Rate	P	R	C	P	R	C	P	R	C	P
General Section 4	2	16	17	1	15	15	1	15	15	1
Limited Section 4	20	92	102	10	120	120	10	120	120	10
Other Rate Filings	62	397	399	60	395	409	46	395	375	66
Tracking Filings	27	210	207	30	250	251	29	250	240	39
Compliance Filings	86	341	336	91	350	319	122	350	319	153
Refunds	42	95	110	27	90	70	47	90	70	67
Technical Conferences	15	43	29	29	50	43	36	50	43	43
Litigated Section 4	85	17	28	74	30	30	74	35	30	79
Order No. 636 Filings	9	3	12	0	1	1	0	0	0	0
Intrastate Filings	24	14	16	22	20	23	19	20	17	22
Transp. Trans. Reports	25	3,615	3,613	27	203	230	0	0	0	0
Prefiling Conferences	0	80	80	0	80	80	0	80	80	0
Sect. 311 Conferences	0	12	12	0	12	12	0	12	12	0
Operating Cond. Reports	0	15	13	2	15	17	0	15	15	0
Staff Panel for 311s	2	1	3	0	1	1	0	1	1	0
Staff Adjustments	4	12	7	9	8	8	9	8	8	9
Settlements	19	74	72	21	50	45	26	50	45	31
Form 2 Filings	0	47	47	0	47	47	0	47	47	0
Form 2A Filings	0	66	66	0	66	66	0	66	66	0
Form 11 Filings	0	624	624	0	104	104	0	104	104	0
Commission Opinions	0	8	8	0	8	8	0	8	8	0
Financial Audits	61	19	41	39	34	34	39	35	35	39
Contested Accounting	4	0	1	3	3	3	3	3	5	1
Accounting Approval	30	57	36	51	65	65	51	65	65	51
Accounting Refunds	1	1	0	2	1	1	2	1	1	2
Declaratory Orders	2	3	1	4	2	3	3	2	3	2
Complaints	25	20	26	19	9	15	13	10	10	13

(Continued on Next Page)

	FY 1994 Actual	FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
Gas Rates	P	R	C	P	R	C	P	R	C	P
Rehearings	161	359	368	152	350	350	152	400	400	152
Interlocutory Appeals	0	5	5	0	5	5	0	5	5	0
Rulemakings	0	5	2	3	2	3	2	2	3	1
TOTAL	706	6,251	6,281	676	2,386	2,378	684	2,239	2,142	781

	FY 1994 Actual	FY 1995 Actual			FY1996 Estimate			FY1997 Estimate		
Oil	P	R	C	P	R	C	P	R	C	P
General Filings	40	517	530	27	500	500	27	500	500	27
Rate Increase Filings	0	12	12	0	20	20	0	20	20	0
Tariff (Formal)	116	76	25	167	40	90	117	40	80	77
Depreciation Orders	0	3	2	1	10	5	6	10	5	11
Litigated Cases	151	58	31	178	40	77	141	40	69	112
Settlements	1	0	1	0	20	20	0	10	10	0
Commission Opinions	0	2	2	0	2	2	0	2	2	0
Rulemakings	2	1	2	1	1	2	0	1	1	0
Prefiling Conferences	0	1,000	1,000	0	1,000	1,000	0	1,000	1,000	0
Rehearings	2	2	2	2	4	3	3	6	6	3
Complaints	11	1	1	11	1	1	11	5	5	11
Interlocutory Appeals	0	3	3	0	3	3	0	3	3	0
Declaratory Orders	2	0	1	1	1	0	2	1	1	2
Financial Audits	1	0	1	0	4	1	3	1	3	1
Accounting Approvals	20	56	53	23	65	65	23	65	65	23
TOTAL	346	1,731	1,666	411	1,711	1,789	333	1,704	1,770	267

APPENDIX B:

OBJECT CLASS TABLE

OBJECT CLASS SUMMARY
($ in Thousands)

		FY 1995 Actual	FY 1996 Estimate	FY 1997 Request
11.9	Personnel Compensation	$85,689	$88,854	$94,092
12.1	Benefits	15,540	16,683	17,718
13.0	Benefits for Former Personnel	45	35	40
	Total, Personnel Compensation & Benefits	101,274	105,572	111,850
21.0	Travel & Transportation of Persons	2,169	2,430	2,415
22.0	Transportation of Things	24	10	10
23.1	Rent	9,591	18,914	17,301
23.3	Communications, Utilities & Misc. Charges	4,514	4,329	3,248
24.0	Printing & Reproduction	1,603	1,750	1,775
25.0	Other Services	29,484	20,520	22,940
	Advisory and Assistance	8,210	6,673	7,338
	Non-Federal	19,552	11,802	13,461
	Federal	401	615	631
	Operations & Maintenance of Equipment	1,321	1,430	1,510
26.0	Supplies & Materials	1,131	1,320	1,322
31.0	Equipment	13,464	4,595	3,463
41.0	Grants, Subsidies & Contributions	188	49	48
42.0	Claims & Indemnities	149	25	25
	TOTAL	$163,591	$159,514	$164,397
	Application of Prior Years' Budget Authority		(28,224)	(5,000)
	TOTAL REQUEST		$131,290	$159,397

APPENDIX C:

PERFORMANCE MEASUREMENTS

Performance Measurements

Our FY 1997 performance measurements reflect our goal to continue improving our regulatory models.

Making regulation work better and integrating market forces, where possible, into an overall regulatory model. We have begun the process, in several pending rulemakings, of developing new and better ways to analyze unique and complex problems, to reach fully justified decisions more quickly, and to cut the cost of doing regulatory business. This means improving and streamlining the regulations, specifying the types of information to be filed by the regulated companies and the methods (electronic versus paper) used in making those filings.

While the use of more traditional models of regulation will continue to be necessary in noncompetitive sectors of the industries, we have encouraged the growth of competition in such sectors as natural gas producing markets, oil pipelines, and electric power generation. For example, we are using an indexing model in oil pipeline rates and allowing some market-based pricing for oil pipelines where lack of market power is shown. In natural gas we have approved market-based rates for certain natural gas storage projects. This process will continue and evolve in the foreseeable future. We are also moving forward on this issue in the electric industry with the advent of the restructuring process in the electric transmission segment of the industry.

To protect customers through fostering efficiency, innovation and competition, we will:

- provide refined standards for market-based rates that encourage companies to identify competitive services and to apply for and receive market-based regulation;
- develop options for performance-based regulation for areas that cannot be competitive;
- provide rate certainty by deciding rate treatment in certificate cases for new natural gas pipeline construction; and
- establish fully comparable open-access transmission for all transmission owners under our jurisdiction.

Improving the efficiency of our environmental programs. In regulating hydropower development and natural gas pipeline construction, we will continue to balance all legitimate interests under many separate statutes, resolve questions quickly, and monitor future performance to ensure that the terms under which the utilities are allowed to build and operate balance environmental protection and project benefits.

To protect the environment and enhance project benefits, we will:

- reduce legitimate complaints that people have been excluded from environmental processes;

- reduce processing time for environmental reviews;
- increase the rate of voluntary compliance; and
- increase the percentage of dams meeting all current safety guidelines.

APPENDIX D:

STATUTORY AUTHORITY

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STATUTORY AUTHORIZATION

The Commission's primary sources of authority are the following statutes: Federal Power Act, Natural Gas Act, Department of Energy Organization Act, Energy Policy Act, Natural Gas Policy Act, Interstate Commerce Act, National Environmental Policy Act, Endangered Species Act, Electric Consumers Protection Act, Energy Security Act, Public Utility Regulatory Policies Act, Public Utility Holding Company Act, Pacific Northwest Electric Power Planning and Conservation Act, Regulatory Fairness Act, and Clean Air Act.

These statutes authorize the Commission to regulate:

- interstate sales for resale and transmission of electric energy;
- certification of exempt wholesale generators and qualifying facilities;
- corporate transactions, mergers, and security issues of electric public utilities;
- construction and operation of natural gas pipelines;
- interstate sales for resale and transportation of natural gas;
- interstate transportation of crude oil and petroleum products by pipeline; and
- construction, operation, and safety of non-Federal hydropower projects.

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